THE MITHRAIC ORIGIN AND MEANINGS OF THE ROTAS-SATOR SQUARE

ÉTUDES PRÉLIMINAIRES AUX RELIGIONS ORIENTALES DANS L'EMPIRE ROMAIN

PUBLIÉES PAR

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THE MITHRAIC ORIGIN AND MEANINGS OF THE ROTAS-SATOR SQUARE

LEIDEN
E. J. BRILL
1973

The square on a piece of leather from a folklore collection that perhaps comes from Saxony

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WALTER O. MOELLER

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WITH A FRONTISPIECE AND 6 PLATES

LEIDEN
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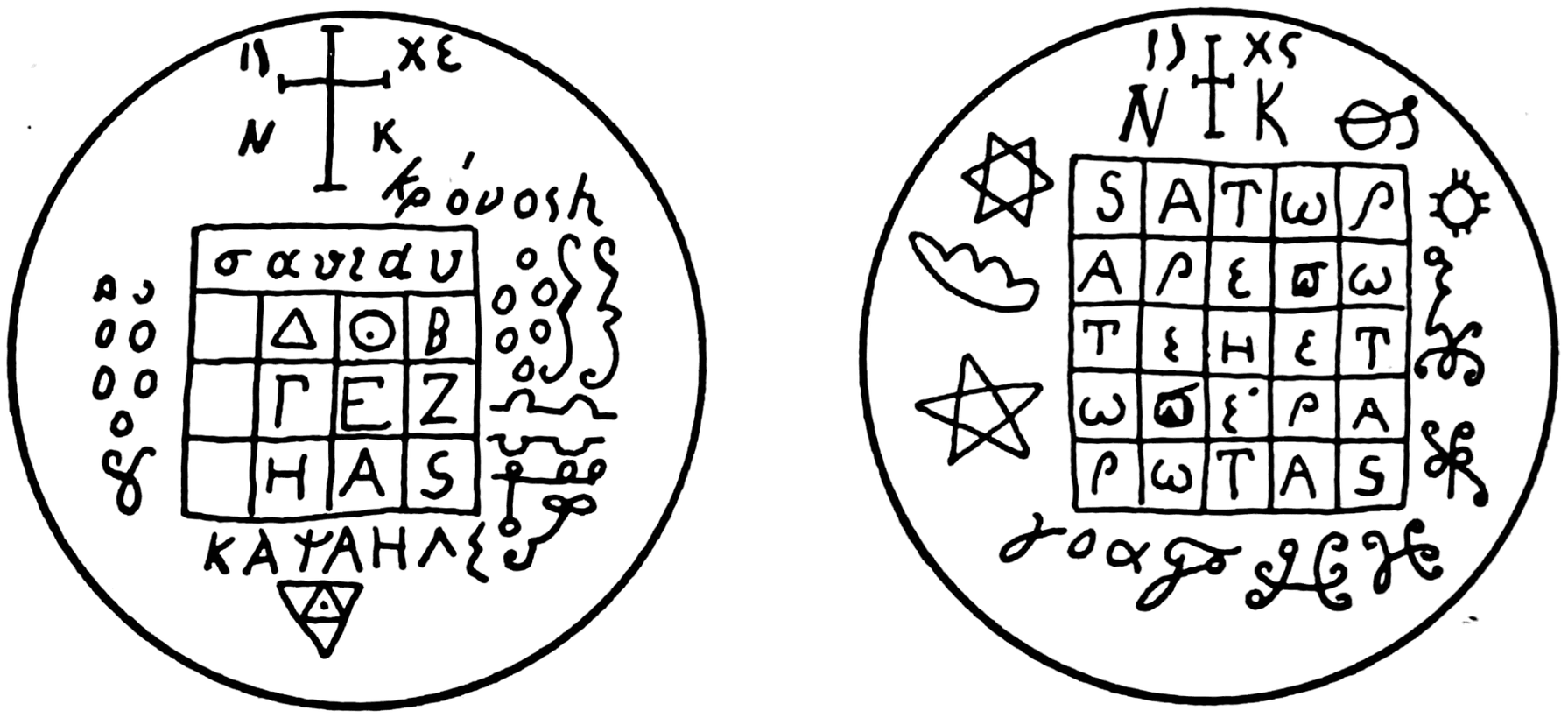
PREFACE

The ROTAS-SATOR/SATOR-ROTAS square has a history of at least two millennia and has appeared on all five continents. The attraction that men feel for it borders on the instinctual, and even in our supposedly rational age the magic formula still entices with its mysteries. Hardly a year passes that at least one investigator does not have a try at unravelling its meaning and determining its origin. Consequently the bibliography on the subject is enormous and constantly growing. Despite this considerable effort, however, the matter remains *sub iudice.*

My interest in the word-square began in late 1969 when I sensed that the SATOR was Saturn and that the square transmitted a direct message concerned with sowing and reaping. In the spring of 1971 I began to speculate on it as a number-square. Since then many significant numbers have turned up and further word meanings have been deduced, all of which point to the Mithraic character of the formula. I now present these findings in the firm conviction that I have come upon the correct solution.

I wish to express my gratitude to Professor T. Robert S. Broughton for carefully reading the manuscript and making helpful suggestions and corrections and to Professors W. J. Verdenius and M. J. Vermaseren for seeing merit in my approach. My special thanks are due to two of my students: Mr. Henry Parker, who detected a crucial anagram, and Mr. Richard Frajola, who is responsible for much of the numerological analysis. Their contributions will be duly acknowledged in the course of the study.

Temple University W. O. M.



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The Talisman from Thasos

THE MITHRAIC ORIGIN AND MEANINGS OF THE ROTAS-SATOR SQUARE

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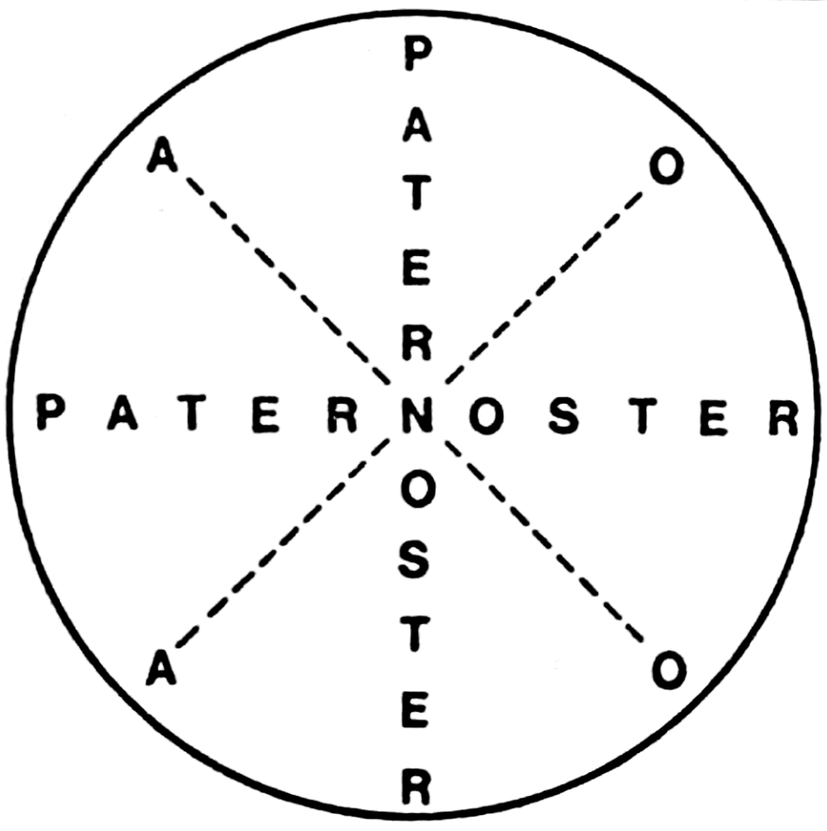
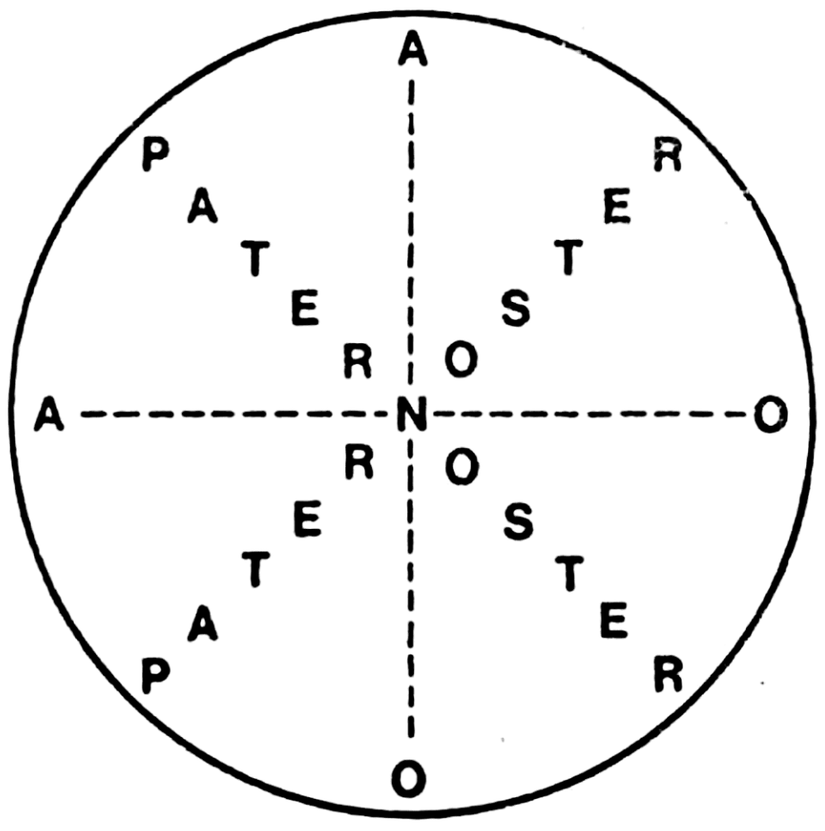




My intention in this study is to propose a comprehensive resolution of the ROTAS-SATOR enigma in which I maintain the following points: (1) the square is Mithraic, for the Mithraic triad is present: Saturnus-Aion, Sol Invictus and Mithra; (2) the words of the square can be construed in several ways, three of which give meanings consistent with Mithraic thought; (3) besides the PATER NOSTER-A/O cross, there are at least four other anagrams that have theological import; (4) the square is fundamentally a number-square from which the following numbers can be calculated: 666[1], 7, 360, 2,520, 432,000, 25,920 and 2,160,000; (5) four symbols are represented in the square: the cross, the triangle, the circle and the square; (6) in addition to

[1] See p. 18, n. 1 for discussion of this number.

the *AΩ* symbolism, there are numerous indications of a connection between the magic square and Mithraism on the one hand and the *Apocalypse of St. John* on the other; and (7) in composing the square the above numbers dictated the choice of the letter-numbers; consequently the word-meanings and anagrams were all the more striking as proofs of the Mithraic faith. In short, then, I shall argue that the ROTAS-SATOR square was the product of the syncretic paganism of the Roman Empire.

Before proceeding, however, we must lay to rest a ghost that has tended to hamper a solution to the mystery. We must cease assuming, as most have assumed, that the TENET cross within the square and the PATER NOSTER-A/O cross inherent in its twenty-five letters necessarily indicate Christian provenience.[1] The fact is that in its many forms the cross was a pagan symbol greatly predating Christianity: the Egyptian *crux ansata* (*ankh*) was the hieroglyph for life

[1] Most scholars assume the square to be Christian. Some have seen Jewish or Judeo-Christian origins and influences: M. Dornseiff, *Das Rotas-Opera Quadrat* in *Zeit. Neutest. Wiss.* 30 (1937), 222-38; F. Cumont, *CRAI* (1937), 93 and *Rend. Pont. Acc. Arch. Rom.* 13 (1937), 7-8; G. de Jerphanion, *Du nouveau sur la formule magique ROTAS OPERA (et non SATOR AREPO)* in *Rec. Sci. Rel.* 27 (1937), 326-35, M. Simon, *Verus Israel* (Paris, 1948), 412; H. Fuchs, *Die Herkunft der Satorformel* in *Schweizerisches Archiv für Volkskunde* 47 (1951), 49 ff.; D. Daube, *'Arepo' and the 'Sator' Square* in *The Expository Times* 62 (1951), 316; D. Fishwick, *On the Origins of the Rotas-Sator Square* in *HThR* 57 (1964), 39-54; and J. Meysing, *Introduction à la numérologie biblique. Le diagramme Sator Arepo* in *Rev. Sci. Rel.* 40 (1966), 321-52. Few have ventured to suggest pagan provenience: J. Sundwall, *L'enigmatica iscrizione ROTAS in Pompei* in *Acta Academiae Aboensis, Humaniora* 15, 5 (1945), 16 f. and M. Budimir, *Quadratum magicum retractatur* in *Ziva Antika* 8 (1958), 301 ff.: Orphic; S. Eitrem, *The SATOR APEPO-Formula Once More* in *Eranos* 48 (1950), 73 f.: Italic; P.-L. Couchoud and A. Audin, *Le carré magique. Une interprétation graphique* in *Latomus* 17 (1958), 518-27: pre-Christian; R. Boris and L. P. May, *Le pythagorisme secret du Sator arepo. Lettres et nombres* in *Recueil des Notices et Mémoires de la Société Archéologique de Constantine* 69 (1955-1956), 95-117: Pythagorian; H. Hommel, *Schöpfer und Erhalter* (Berlin, 1956), 32 ff. and J. B. Bauer, *Die SATOR-Formel und ihr Sitz im Leben* in *Adeua Mitteilungen* 31 (1972), 7-14: Stoic; and A. Omedeo, *La croce d'Ercolano e il culto precostantiniano della croce* in *La Critica* 38 (1940), 46, n. 3: Mithraic. Although the last mentioned scholar advocated what I believe is the correct origin, his reasons for so doing are the slimmest: (1) a graffito containing the square was found in the Pompeian Palestra, which in turn suggests a Mithraic origin since the area was used for military exercises of the *Iuvenes*; and (2) the *crux gammata* was used by the Mithraists. I can see no swastika in the magic formula.

that in Roman times became the symbol of the future life;[1] the *crux gammata* (swastika) certainly had wide currency; the cross was an Assyrian symbol;[2] it was featured prominently in the cult of the Alexandrine Aion;[3] crosses were probably tattooed, incised or branded on the foreheads of the priests of Isis and of Mithraic initiates;[4] they appear on Mithraic monuments and are centrally displayed on the 'hosts' in a representation of the cult's common meal.[5] Even Jews used the cross as a symbol in antiquity.[6] There is a well-founded theory that the cross was in origin the four spokes of the sun-wheel removed from their mandala.[7] (The Celtic cross is the sun-wheel with its mandala shrunk about its hub.) Therefore, as a symbol, the cross was solar in nature and had universal appeal. Although there is a possibility that the cross had been accepted as a Christian symbol in the second century,[8] there is equally strong evidence that it was not openly used by Christians or was considered more pagan than Christian.[9] Sometime after Constantine the *crux quadrata* (+), the *crux capitata* (+) and the *crux commissa* (⊤) became symbols of the crucifixion, whereas the

[1] Sozm. *Hist. Eccl.* VII 15.

[2] O. Montelius, *Das Sonnenrad und das christliche Kreuz* in *Mannus* 1 (1909), 65-69; cf. E. A. E. Budge, *Amulets and Superstitions* (London, 1930), 330-49.

[3] Epiphanius, *Panarium* LI 22 3-11; ed. Holl, II (Leipzig, 1922), 284 f.; A.-J. Festugière, *Les cinq sceaux de l'Aion alexandrin* in *Rev. d'Égyptologie* 8 (1951), 63-70.

[4] W. Dennison, *A New Head of the 'Scipio' Type* in *AJA* 9 (1905), 11-43; H. Lilliebjörn, *Über religiöse Signierung in der Antike mit besonderer Berücksichtigung der Kreuzsignierung* (Uppsala, 1933), 38-41, 63-78; H. von Heintze, *Studien zu den Porträts des 3. Jahrhunderts n. Chr.* in *RM* 64 (1954), 69 ff.

[5] F. Cumont, *MMM* II, figs. 46, 97, 99, 161, 210, 377 and I, p. 175; M. J. Vermaseren, *CIMRM* I, mon. 681-fig. 765, mon. 419-fig. 116 and II, mon. 2247-fig. 623, mon. 2315-fig. 643, mon. 2354-fig. 653b, mons. 2046-11, mon. 2353. Some representations of stars on Mithraic monumentsare crosses: *CIMRM* I, mon. 546-fig. 154, mon. 435-fig. 122, mon. 310-fig. 84.

[6] E. Dinkler, *Zur Geschichte des Kreuz-symbols* in *Zeit. Th. Kir.* 48 (1951), 148-72; Fishwick, *op. cit.* 48-50 and *The Talpioth Ossuaries Again* in *NTStu.* 10 (1963), 49-61; cf. R. Goodenough, *Jewish Symbols in the Graeco-Roman Period* (New York, 1953), I, 132 f.

[7] Montelius, *op. cit.*

[8] *Epistle of Barnabas* 9 8; H. Rahner, *Greek Myths and Christian Mysteries*, trans. Brian Battershaw (London, 1957), 46 ff.

[9] Clem. Alex. *Paed.* III 11; Min. Fel. *Oct.* 29 6-8; Tert. *Apol.* 16 6-8.

crux decussata (X) was taken as the initial of *XPIΣTOΣ*.[1] In the late fourth century, however, pagans still shared the cross with Christians.[2] As with the cross, the characterizing of a masculine creator god as 'father' or 'our father' was not exclusively a Christian preserve; Jews and pagans did this as well as Christians.[3] Likewise, the use of the first and the last letters of the Semitic and Greek alphabets was a way of designating the beginning and the end among Jews, pagans and Christians.[4] In view of these considerations, it is permissible to look into closets other than Christian for answers to the origin and meaning of the magic square.

A Pompeian graffito[5] containing the word-square provides a context that indicates the identity of the PATER NOSTER: SAUTRAN(e)

[1] The adoption of the *X* by Constantine may not have been the result of his conversion to Christianity before the Battle of the Milvian Bridge: J.-J. Hatt (*La vision de Constantin au sanctuaire de Grand et l'origine celtiquc du labarum* in *Latomus* 9 (1950), 427-36) has it adopted for its association with the Celtic Apollo; H. Grégoire (*La conversion de Constantin* in *Rev. de l'Université de Bruxelles* 36 (1930), 231-72) proposes that it may have represented the X of the decennial vows for the continuance of the emperor's reign. R. Egger (*Das Labarum, die Kaisarstandarte der Spätantike* in *Sitzb. Öst. Ak. Wiss., Philosophische-historische Klasse* 234 (1960), 3 ff.) treats with the *labarum* only as a Chi-Rho and, ignoring any solar qualities of the symbol, holds that it is the abbreviation for *XPIΣTOΣ*; see our p. 8, n. 2 and p. 20, n. 1.

[2] Socrates *Hist. Eccl.* V 17.

[3] Fuchs, *op. cit.*, 50, n. 43; Hommel, *op. cit.*, 47 ff.; Fishwick, *HThR* 57 (1964), 47; J. Carmignac, *Recherches sur le 'Notre Père'* (Paris, 1969).

[4] H. L. Strack and P. Billerbeck, *Kommentar zum Neuen Testament aus Talmud und Midrash*[2] (Munich, 1954), III, 789; Hommel, *op. cit.*, 69 ff.; Fishwick, *HThR* 57 (1964), 48 f. and *NTStu.* 10 (1963), 51 ff.

[5] *CIL* IV, 8622, 8623; M. Della Corte, *Il crittogramma di 'Pater Noster' rinvenuto a Pompei* in *Rend. Pont. Acc. Arch. Rom.* 12 (1937), 397-400; *Not. Scav.*, 1939, 236, no. 139. A fragment of the magic square was found previously at Pompeii in the House of P. Paquius Proculus: Della Corte, *Not. Scav.*, 1929, 449, no. 112; *CIL* IV, 8123. For the triangle in a Mithraic context see M. J. Vermaseren and C. C. van Essen, *The Excavations in the Mithraeum of the Church of Santa Prisca* (Leiden, 1965), 344 ff. Other instances of the square from pagan antiquity are the one found at Cirencester in 1868 (*Archaeological Journal* 56 (1899), 320; *Ephemeris Epigraphica* IX, 1001), four squares, one in Greek letters, from Dura Europos (*The Excavations at Dura-Europos, Preliminary Report V* (1934), 159, no. 481 and *Preliminary Report VI* (1936), 486, no. 809; *Annali della R. Scuola Normale Superiore di Pisa*, ser. 2, vol. 3 (1934). 103-05) and most recently a square impressed on a tile found at Aquincum (*Acta Antiqua Academiae Scientiarum Hungaricae* 2 (1954), 305-10; *Ann. Épigr.*, 1956, no. 63; *CRAI* (1955), 500-07.

VA(le) / S / ⏢ / ROTAS / OPERA / TENET / AREPO / SATOR / ANO / SAUTRAN(e) / VALE. Since it came to light in 1936, scholars have dismissed the 'Sautrane vale' at the beginning and the end of the graffito as a mere 'hello and goodbye' to a certain Sautranus or Saturanus.[1] Could not, however, Sautranus have been a form of Saturnus? There is but a transposition of the 't' and the 'u' and an intrusion of an 'a' to make the word pronounceable. One might think it a misspelling, but as we shall see it was probably written this way purposely (see below, pp. 22-23). 'Sautrane vale' then may have been a prayer formula framing the square. The epithet Sator was particularly appropriate to Saturn, a deity intimately associated with sowing.[2] In any case he was certainly one of the gods whom *Sator* in a magic square would have brought to mind.[3] Saturnus-Kronus was the father god par excellence, being the genitor of both gods and men and of Jupiter-Zeus himself.[4] He was also addressed as 'father' and 'our father'.[5]

Since the cross was a Mithraic symbol, the Sautranus of the graffito may have been specifically the high god of Mithraism who was called by many names: Saturnus, Kronus, Chronus, Saeculum, Aion and Zervan Akarana.[6] In the Mithraic triad he was the principle of unbound-

[1] So much is this the case that Della Corte put these words under a separate rubric (8622) in *CIL* when in fact they are part of one graffito.

[2] See M. Leglay, *Saturne africain. Histoire* (Paris, 1966), 450 for documentation. Because of this agricultural connection, Meysing (*op. cit.*, 322 ff.) proposed that Saturn was the model for the Sator of the square.

[3] Hommel, *op. cit.*, 49 ff.

[4] Hes. *Op.* 69; *Theog.* 453-58; Hom. *Il.* XIV 204.

[5] Hom. *Il.* VIII 31; *Od.* I 45 and 81 and XXIV 473.

[6] The questions of the identity of the Mithraic high god, his relations to Zervan Akarana and the Persian pantheon and the syncretism of Saturnus-Kronus-Chronus with Aion-Saeculum have not as yet been settled. At the beginning of the nineteenth century the Danish archaeologist G. Zoega identified the leontocephalus deity found in mithrea as Aion: *Bassorilievi antichi di Roma* (1808), II, 83 ff. At the end of the century F. Cumont saw this strange god instead as Chronus-Kronus-Aion and connected him with Zervan: *MMM* I, 74-85. Immediately before World War I, F. Legge doubted this identification and suggested that the lion-headed god was Ahriman: *The Lion-Headed God of the Mithraic Mysteries* in *Pro. Soc. Bib. Arch.* 34 (1912), 125-42; and shortly after World War I, H. J. Junker underlined the importance of the Zervanic cult of Kronus-Aion in the Hellenistic world: *Über iranische Quellen der hellenistischen Zervan-Vorstellung* in *Vorträge der Bibliotek Warburg* 1 (1923), 125-78. M. Zepf followed by showing that Aion was an important god in Hellenistic times: *Der Gott Aiών in*

ed, that is infinite, time. His iconography was varied. Sometimes he appeared as an old man with covered head carrying a sickle. As Aion he appeared as a young man or an old man sitting or standing in a wheel or holding a wheel. As Saturnus-Aion he was the peculiarly Mithraic god who was represented with a lion's head and wings and who was encoiled by a serpent. In this form he generally held keys, often possessed animal feet and was at times marked on his body with signs of the zodiac, thunderbolts, eyes and lion-masks. There also appears to have been a combination of the Aion iconography with that of Saturnus-Aion. That is the winged or bestial god had the head of an old or young man and Aion with his wheel was associated with snakes.[1]

As a god of time, Saturnus-Aion was thought of as the beginning

hellenistischen Theologie in *Archiv Rel. Wiss.* 25 (1927), 225 ff. A. D. Nock, however, maintained that there was no identity of Zervan with Aion and that the word *αἰών* 'was not a proper *nomen*, hardly an individuality': *A Vision of Mandulis Aion* in *HThR* 27 (1934), 78 ff.; cf. A.-J. Festugière, *Le sens philosophique du mot AIΩN* in *La Parola del Passato* 4 (1949), 172-89. D. Levi in turn pointed out that the iconography of Chronus-Kronus-Aion coalesced and that they were syncretized to the same gods such as Serapis and the Sun: *Aion* in *Hesperia* 12 (1944), 269-314. R. Pettazzoni saw Egyptian origins for the leontocephalus god and suggested that he represented the Egyptian concept of time rather than the Persian; like Levi he demonstrated the syncretism of Aion, Kronus-Chronus, Serapis and the Sun: *Essays on the History of Religions*, ed. and trans. H. J. Rose (Leiden, 1954), 164-92; *Kronus-Chronos in Egitto* in *Hommages à Joseph Bidez et à Franz Cumont* (=*Collections Latomus*) 2 (1949), 245-256; *La progenie del sole* in *Mélanges Henri Grégoire* 2 (1950), 493-500. About the same time S. Wikander saw the lion-headed god as the Orphic Chronus: *Études sur les mystères de Mithra* (Lund, 1950), 53. J. Duchesne-Guillemin considered him Ahriman and thought that the Mithraic high god was Caelus-Jupiter, the western counterpart of Ahura Mazda: *Ahriman et le dieu suprême dans les mystères de Mithra* in *Numen* 2 (1955), 190-55; *Ormazd et Ahriman* (Paris, 1955), 126 ff.; cf. *Aiōn et le Léontocéphale, Mithra et Ahriman* in *La Nouvelle Clio* 10 (1960), 91-98. R. C. Zaehner was of the same mind: *Zūrvan* (Oxford, 1955), pp. vii-ix; *Postscript to Zūrvan* in *Bul. School Af. Of. Stu.* 17 (1955), 237-43; cf. M. Boyce, *Some Reflections on Zurvanism* in *Bul. School Af. Or. Stu.* 19 (1957), 314-16. For recent reaffirmations of the idea that the lion-headed god is Aion see Vermaseren, *De Mithras-dienst in Rome* (Nijmegen, 1951), 96-99: *Mithras, the Secret God*, trans. T. and V. Megaw (New York, 1963), 116-28; *Studia archaeologica G. van Hoorn oblata* (Leiden, 1951), 94 ff. (=*Mnemosyne*, ser. 4, vol. 4 (1951), 285 ff.); cf. Vermaseren-Essen, *op. cit.*, 117 ff. See also *Reallexikon für Antike und Christentum*, s.v. Aion.

[1] Levi, *op. cit.*, esp. 290 ff.; cf. L. K. Kákosky, *Osiris-Aion* in *Oriens Antiqua* 2 (1964), 15-25. It is partly as a result of this syncretism that I choose to use the name Saturnus-Aion.

and the end. He had ruled in the age of gold[1] and would come again to install the *Saturnium regnum*.[2] The sacred season for Saturn, Sol and Aion was the end of the old year and the start of the new: the Saturnalia or Kronia began on Dec. 17th and probably lasted several days;[3] the birthday of the Sun was Dec. 25th[4] and in Egypt that date was the Kronia, the birthday of Kronus;[5] similarly in Alexandria the birthday of Aion was Jan. 6th.[6] There was then a definite connection between the cults of Aion, Saturn and the Sun; and R. Pettazzoni[7] and D. Levi[8] have correctly shown that the three gods were in fact different manifestations of the same deity. That these gods were indeed those of beginnings and ends is also reflected in the fact that the first day of the week is Sunday, the last day Saturday. (Two observations are in order here: (1) the last month of the year, December, was for the Romans devoted to Saturn[9] whereas Janus, who gave his name to the first month and whose festival was on Jan. 9th, was a time and solar deity;[10] and (2) the model for our Father Time or the Old Year must be Saturn whereas the young Aion must be the model for the child who represents the New Year.) The T's at the ends of the TENET cross in the square are significant as symbols of the end, for *taw*, the equivalent of T, was the last letter of the Semitic alphabet. It was commonly written as a *crux quadrata* (+) or a *crux decussata* (×). Some scholars[11] therefore have seen here indications of Jewish influence,

[1] Hes. *Op.* 110-20.

[2] For the ancient idea of the return of the golden age see H. Jeanmaire, *La Sibylle et le retour de l'âge d'or* (Paris, 1939); Carcopino, *Virgile et le mystère de la IV^e Églogue* (Paris, 1930); E. Norden, *Die Geburt des Kindes* (Stuttgart, 1958).

[3] J.-H. Hild, *Saturnalia* in *Dar.-Sag.* 4, 1081.

[4] G. Wissowa, *Religion und Kultus der Römer* (Munich, 1902), 307.

[5] See p. *3*, n. *3*.

[6] *Ibid.*

[7] *Essays*, 164-92

[8] *Op. cit., passim.*

[9] Plut. *Quaest. Rom.* 34; cf. Martial V 84 ff.

[10] O. Huth, *Janus* (Bonn, 1932), 34 ff.; P. Lambrechts, *Vesta* in *Latomus* 4 (1940-1945), 327-29; L. R. Taylor and L. A. Holland, *Janus and the Fasti* in *CP* 47 (1952), 137-42; Pettazzoni, *Per l'iconografia di Giano* in *Studi Etruschi* 24 (1955-1956), 79-90. For other aspects of Janus see Holland, *Janus and the Bridge* in *Papers and Monographs of the American Academy in Rome* 21 (1961).

[11] See the works of Dornseiff, Cumont, Jerphanion and Fishwick cited on p. 2, n. 1.

if not origin; they refer to the *taw* on the foreheads of the faithful in *Ezekiel* 9 4-5 and feel that the ROTAS of the square must be the wheels in *Ezekiel*. But the same alphabet was used by other Semitic speakers such as Phoenicians, Libyophoenicians and Syrians; for them too the *taw* was a symbol of the end. The African Saturn, *Ba'al Hammon*, was the national god of the Libyophoenicians, and we know that the cult of the sun was particularly strong in Syria. An inscription from Tobna in Algeria dedicated to Sol Invictus has as its first letter a single X which M. Janon[1] has identified as either a solar symbol or the abbreviation of *Χρόνος*, that is Saturn. It is an overlooked fact that the Chi stands for *XPONOΣ* as well as for *XPIΣTOΣ*, as does for that matter the Chi-Rho.[2] The point is that with the close association of Saturnus-Aion and Sol, this X could well have been both a solar symbol and an abbreviation for *XPONOΣ*. As the Chi could have represented Chronus, the large and imperiously drawn single S in the Pompeian graffito could have stood for Saturnus or even Sol and was not an abbreviation for *salutem* as has been thought up to now.[3] The SATOR god, Saturnus-Aion, could very well have been PATER NOSTER, for his symbol was the solar cross, either as an + or an ×,

[1] *Note sur une inscription trouvée à Tobna* in *Bul. Arch. Algérienne* 1 (1962-1965), 171-73; see *Ann. Épigr.*, 1967, no. 593 where (1) the *X* is termed enigmatic and perhaps an astral symbol and (2) the *S* that follows is thought to represent either *S(oli)* or *S(aturno)*.

[2] The so-called Chi Rho, like the cross, must be pre-Christian, for there are many evidences of it that either predate Christianity or are recognizably non-Christian if datable to our era. See the monograms on coins of Ptolemy Apion, Mithradates of Pontus, Tigranes and Trajan and of the city of Athens in F. Cabrol and H. Leclerq, *Dictionnaire d'Archéologie Chrétienne et de Liturgie* 3 (1913), s. v. Chrisme, figs. 2821-2825; see also Bactrian coins with the Chi-Rho in *Bonner Jahrb.*, 1866, 142 and pl. II. H. R. Engler (*Die Sonne als Symbol* (Zurich, 1962), 229-32) sees the Chi-Rho in all its forms as stemming from prehistoric times and as a combination of the sun-axe with the various solar crosses. If this is true, as I believe it is, the monogram is in origin a sun-symbol and its ligature qualities are only incidental. The Iota-Chi in turn was originally the spokes of a six spoked sun-wheel removed from their circle. That a Iota-Chi is plainly and prominently marked on the tile from Aquincum, then, indicates that the ROTAS-SATOR square has something to do with a solar cult.

[3] Fishwick, *HThR* 57 (1964), 52, n. 51; F. Focke, *Sator Arepo: Abenteuer eines magischen Quadrats* in *Würzburger Jahrbücher für Altertumswissenschaft* 3 (1948), 379.

and as the god of eternity he was the *A* and the *Ω*, or for the Semitic speaker the *aleph* and the *taw*.[1]

The most frustrating aspect of the ROTAS-SATOR square is that it has defied attempts at a direct translation of its five words into a meaningful sentence. This results from the fact that one of them, AREPO, has no firmly established meaning, and probably never will. From the outset all constructions of the square that aim at a direct rendering of all five words are open to question. This has led some scholars either to deny the possibility of producing an acceptable translation[2] or to advance the idea that AREPO is a nonsense word coined to provide the letters needed for the PATER NOSTER-A/O cross.[3] As I hope to demonstrate, however, the nature of a magic rebus is such that it has meanings within meanings, that it is many sided and that it is numinous. Thus for it to have been patently inane, that is for the five words to have had no meaning when read consecutively, would have been a serious flaw that would have weakened its efficacy, whatever that was. We are on safer ground, therefore, if we at least try for translations that are direct, that are grammatically simple and that perhaps have theological meaning.

To my mind three valid possibilities have been recognized for the meaning and the syntax of the elusive AREPO: it is either (1) an oblique form of *arepus/arepum*, meaning 'plough'; (2) an oblique form of *arepus/arepum* meaning 'field'; or (3) the nominative singular of a personal name in apposition to SATOR.

Basing his arguments on the evidence of a Greek translation of the square found in a Greek bible of the fourteenth century in which ἄροτρον must stand for AREPO, J. Carcopino[4] opted for the first possibility: ὁ σπείρων ἄροτρον κρατεῖ ἔργα τρόχους. He held that there must have been a Celtic word **arepos* from which the Latin word *ar pus* was derived and he cited scholars of Latin and Celtic languages in support of his stand. The Greek translation, however,

[1] It is significant that the Semitic word *taw* is simultaneously the last letter of the alphabet, the word for 'cross' and the word for 'sign' or 'mark'.

[2] Especially F. J. Dölger (*IXΘYΣ* 5 (1932), 60) who, despite his rejection of its having a recognizable meaning, proceeded to offer a translation.

[3] Fishwick, *HThR* 57 (1964), 50 f.

[4] *Le Christianisme secret du carré magique* in *Mus. Hel.* 5 (1948), 28 f.

does not ring true, for there are three accusatives and the ἔργα, which must render OPERA, makes the Latin the accusative plural of *opus* rather than the ablative singular of *opera* that is demanded by the context. But Carcopino persisted to interpret AREPO as either an 'ablatif instrumental' or a 'datif d'intérêt' of a word meaning 'plough': (1) 'le semeur avec sa charrue tient avec soin ses roues'; (2) 'le semeur, veillant a sa charrue, tient avec soin ses roues.' Carcopino expressed a preference for the second and maintained that the very banality of the two interpretations was their strength, for to him the ROTAS-SATOR square was nothing more than a vehicle for *cruces dissimulatae*; the more empty they were of theological meaning, the more hidden the crosses. But, since the cross was a perfectly acceptable religious symbol, there was no need for dissimulation, especially before A.D. 64 when the Christians were not being persecuted. Carcopino's attempt to date the graffito to A.D. 177 was to say the least strained[1] and has since been effectively destroyed by Atkinson.[2] In view of the questionable translation of the Latin by the anonymous Greek of the fourteenth century, the awkwardness of Carcopino's translations and their lack of meaning, 'plough' does not in my opinion quite give a satisfactory interpretation of the square.

The second possibility, 'field', is more promising for it allows a meaning that contains an ancient religious image. Besides, the Latin word that is obviously close to *arepus/arepum*, *arepennis*[3] or *arapennis*,[4] means 'half acre', and the modern French word 'arpent' stands for a measure of land. G. de Jerphanion[5] in 1935 proposed in passing that AREPO was an ablative of place and offered this translation: 'sur le terrain, le semeur mène avec soin sa charrue.' ROTAS here is taken as equivalent to 'plough'. If, however, we take ROTAS as 'wheels', we get a meaning that contains an image of beginning and end: 'the sower (creator) guides (holds) the wheels carefully in (on) the field (half-acre).' The Romans as early as the first century A.D. had wheeled

[1] *Ibid.*, 49 ff.

[2] *The Origin and Date of the 'Sator' Word-Square* in *J. Eccl. Hist.* 2 (1951), 13 ff.

[3] Col. *Rust.* V 1 6.

[4] Isid. *Orig.* XV 15.

[5] *La formule magique SATOR AREPO ou ROTAS OPERA, vieilles théories et faits nouveaux* in *Rec. Sci. Rel.* 25 (1935), 196, n. 17. J. Vendryès (*CRAI* (1953), 198 ff.) on linguistic grounds saw *arepo* as a Gaulish adverb meaning 'en avant, au bout, à l'extrémité'.

ploughs.[1] Some ancient ploughs, especially in Mesopotamia, were equipped with seed drills.[2] It is true that there is no evidence for the use of a seed plough in western Europe in antiquity[3] and that the latest ancient testimony for a seed plough dates from the seventh or sixth centuries B.C.[4] But could not somewhere in the Roman world of the first century A.D. a combination of these cultural traits have existed, a wheeled plough with a seed drill? With a seed plough the ploughman worked the field first as an *arator* to break open the earth; then with the seed funnel attached he as a *sator* planted the seed. A *sator* then had to guide or hold the wheels carefully 'to ensure an even distribution along the furrows'.[5] But the Romans also had a wheeled harvesting machine in the first century of our era,[6] and one may assume that it too had to be guided carefully along the rows of grain. Although both the wheeled plough and the wheeled harvesting machine are attested only for Gaul, they may both have been more widespread, especially in flat grainland. In all events their existence was known in Italy. With these possibilities in mind, we have a translation that contains the ideas of planting and harvesting, the *A* and the *Ω* of the vegetation cycle. Saturn was not only a god of sowing but also of reaping, for one of his attributes was a sickle (even today Father Time carries a scythe). As long as the sower-creator, Saturn, worked diligently to keep the vegetation cycle going his children would have their daily bread. (One understands better the meaning of the idea that Saturday's child works hard for a living and the association of the planet Saturn with hard work.) Ancient bread was round and marked into sections by a cross (*quadra*, the Latin word for a piece of bread, indicates this), and the loaves found at Pompeii are marked to divide them into eight sections so that they appear as eight-spoked wheels,

1 Plin. *NH* XVIII 172; K. D. White, *Agricultural Implements of the Roman World* (Cambridge, 1967), 134 and n. 2 for bibliography.

2 P. Leser, *Entstehung und Verbreitung des Pfluges* (1931), 241-49- 373-84; 485-86; H. R. Anderson, *Graindrills through Thirty-nine Centuries* in *Agricultural History* 10 (1936), 151-62.

3 *Ibid.*, 157-205.

4 *Ibid.*, 161; H. Hodges, *Technology in the Ancient World* (New York, 1970,) 126.

5 H. Frankfort, *The Birth of Civilization in the Near East* (New York, 1956), 71.

6 Palladius *Rust.* VII 2 2-4; Plin. *NH* XVIII 296; White, *op. cit.*, 157-73; *Gallo-Roman Harvesting Machines* in *Latomus* 26 (1967), 634-47.

which are sun-symbols.[1] The one unmistakable cross from Pompeii is a *crux capitata* on the wall of a bakery.[2] This may not be a matter of chance or an indication of Christian presence,[3] for there was a close connection between the cross symbolism of Sol and the provision of bread. If the *crux commissa* was a solar symbol in antiquity, then the T's of the TENET cross were all the more significant. (The cross from Herculaneum[4] should be restudied as a possible pagan symbol.)

The third possibility, that AREPO is a personal name, has been suggested by Jerphanion,[5] F. Haverfield,[6] R. G. Collingwood[7] and others[8]: 'Arepo, the sower, guides (holds) the wheels carefully.' Up to now one had to assume that the name was either coined or is unknown, which of course weakens the arguments in favor of this solution. But very recently J. Gwyn Griffiths[9] has produced what seems to me a plausible explanation of the word as a personal name: it could have been derived from the Egyptian *Ḥr-Ḥp*, meaning 'face of Apis'. This intepretation is attractive because the name is theophorous of a bull-god who was associated with Serapis;[10] both the role of the bull in Mithraism and the syncretism of Serapis with the Sun and Saturnus-Aion are well attested. I am therefore inclined now to accept this third possibility without, however, rejecting AREPO as meaning 'in the field'. By this I suggest that both constructions could have been recognized

[1] For an illustration of these loaves see H. Tanzer, *The Common People of Pompeii* (Baltimore, 1939), fig. 12.

[2] C. F. Mazois. *Les ruines de Pompéi* (Paris, 1824), 88.

[3] That this cross was found in close proximity to a *lararium* indicates that it too was pagan; cf. also the *crux quadrata* from Pompeii with a loop at the end of each arm: *CIL* IV, 8619. Is this a cross of four sun-axes?

[4] A. Maiuri, *La croce di Ercolano* in *Rend. Pont. Acc. Arch. Rom.* 15 (1939), 193 ff.; L. de Bruyne, *La 'crux interpretum' di Ercolano* in *Riv. Arch. Crist.* 21 (1945), 281 ff. One fact has been generally overlooked when discussing this cross; the theme of a god or a demi-god hanged on a cross or a Lebensbaum was not at all strange to the pagan world: Marsyas, Lycurgus, the Bacchic Orpheus, Seth and Wotan.

[5] *CRAI* (1937), 91 f.

[6] *The Archaeological Journal* 56 (1899), 319 ff.

[7] *The Archaeology of Roman Britain* (London, 1930), 176.

[8] Fuchs, *op. cit.*, 33, n. 8.

[9] *'Arepo' in the Magic 'Salor' Square* in *CR* 80 (1971), 6 ff.

[10] Pietschmann, *Apis* in *RE* I, 2807-09; C. Bailey, *Phases in the Religion of Ancient Rome* (Berkeley, 1932), 198 ff.; Cumont, *The Oriental Religions in Roman Paganism*, trans. G. Showerman (New York, 1956), 73-102.

and that we have here a double entendre. An argument in favor of this word play is that the final 'o' of AREPO would have a long and a short value. Vowel shifts were part of ancient magic and are found in the repetition of vowels in the Mithraic liturgy.[1] A change in meaning as a result of a slight change in pronunciation would have heightened the mysterious nature of the square, and, besides, two theological meanings are always better than one.

Another possibility exists for the rendering of the words of the square. As was noted in a French magazine over a hundred years ago, the square can be read boustrophedon starting with the S to give a complete sentence: SATOR OPERA TENET.[2] Many have proposed this approach since and have construed it as meaning either 'as you sow, so shall you reap' or 'the creator maintains his works'.[3] H. Hommel[4] has shown that the latter interpretation is a reflection of Stoic thought. But it must have been a Mithraic idea also. Two factors argue strongly for such a reading: (1) the boustrophedon approach accentuates the agricultural aspects of the square; (2) the final 'a' in OPERA is short, that is the word becomes the accusative plural of *opus*. Again a vowel change that carries a change of meaning.

Hommel[5] also made a brilliant observation about the graffito from Pompeii. Directly below the square are the letters A/N/O, which must stand for the past, present and future. The ν is the thirteenth letter of the Greek alphabet and can be considered the middle letter (the twelfth letter, μ, can also claim this distinction). Therefore it must stand for the present if an alphabetical designation is intended. Hommel of course emphasized the Stoic nature of the idea of a god who incorporated the attributes of time. But as a god of time, a solar deity and a god of beginnings and ends, Saturnus-Aion was also the master of the present. It was not unusual for a god to be associated

[1] A. Dieterich, *Eine Mithrasliturgie*[2] (Leipzig, 1910). Not all scholars, and especially Cumont, have accepted the papyrus as Mithraic; for bibliography see Cumont, *Oriental Religions*, 261 f. For discussion and examples of vowel series see Dornseiff, *Das Alphabet in Mystik und Magie* (Leipzig, 1922); K. Preizendanz, *Papyri Graecae Magicae* (Leipzig, 1928-1931), vols. I and II; Fishwick, *NTStu*, 10 (1963), 55-58.

[2] *Magazin Pittoresque* 22 (1854), 348.

[3] Fuchs, *op. cit.*, 43, n. 28.

[4] *Op. cit.*, 36 ff.

[5] *Ibid.*, 65 ff.

with points of time. There was the Kerberus of Serapis with his three heads representing the past, present and future;[1] the three-headed god of the Gauls who was probably a solar deity;[2] the three-headed Thracian Rider, a solar deity;[3] the Mosaic from Antioch on which Aion is depicted with his three companions, the *Χρόνοι* who are labeled respectively *Παρωιχημένος*, *'Ενεστώς* and *Μέλλων*:[4] and the inscription to Aion from Eleusis in which he is hailed as *ὁποῖος ἔστι καὶ ἦν καὶ ἔσται, ἀρχὴν μεσότητα τέλος οὐχ ἔχον, μεταβολῆς ἀμέτοχος*.[5] These words are reminiscent, to say the least, of *Apoc.* 1 8 and 18: *ὁ ὢν καὶ ὁ ἦν καὶ ὁ ἐρχόμενος; ἐγώ εἰμι ὁ πρῶτος καὶ ὁ ἔσχατος καὶ ὁ ζῶν.* The A/N/O as the past, present and future puts new light on the placing of the A/O's of the PATER NOSTER cross. Although no instances of the cross have been found, if it ever was written out, the A/O's probably were positioned so as to give a line-of-sight through the N and thereby produced what in effect was an eight-spoked solar wheel (see illustrations at the beginning of this study). The A/N/O symbolism also helps to explain the triangle above the square; it is the geometric representation of the past, present and future, that is Saturn. One notes that the N is the central letter of the square that holds it together, as the present connects the past and the future.

A different approach to the solving of the square has been to construct anagrams from its twenty-five letters. (H. Fuchs[6] has listed some thirty of them.) By far the most stimulating and impressive up to date has been the PATER NOSTER-A/O cross which was discovered by three scholars independently between the years 1924 and 1927,[7] a remarkable coincidence in itself. As has been shown, there is nothing in this anagram that was exclusively Christian. G. Maresch[8] later

[1] Pettazzoni, *Essays*, 164-70.

[2] *Ibid.*, 125-35.

[3] *Ibid.*, 81-94.

[4] Levi, *op. cit.*, 296 ff.

[5] Dittenberg, *SIG*[3] 1125; *CIMRM* I, mon. 2349; Festugière, *La révélation d'Hermes Trismegiste* IV (Paris, 1954), 180 ff.

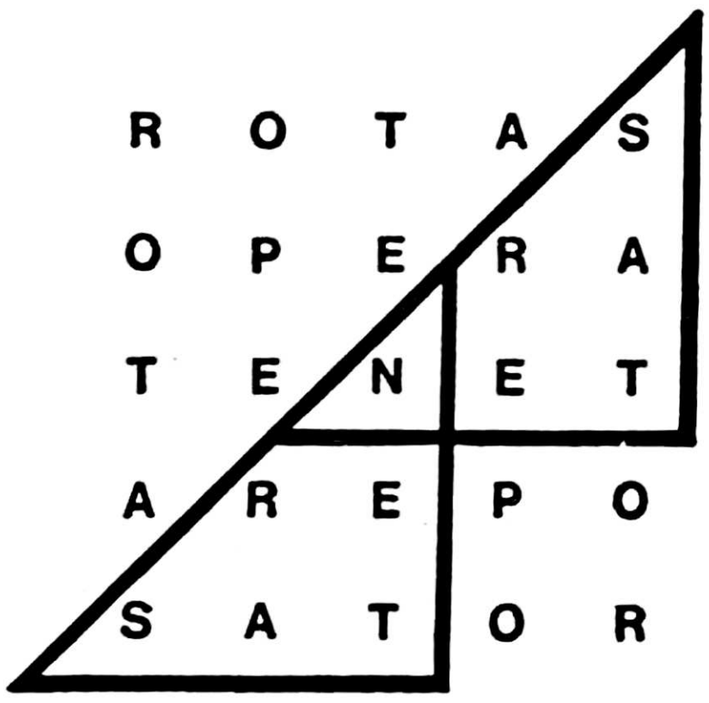
[6] *Op. cit.*, 36, n. 14.

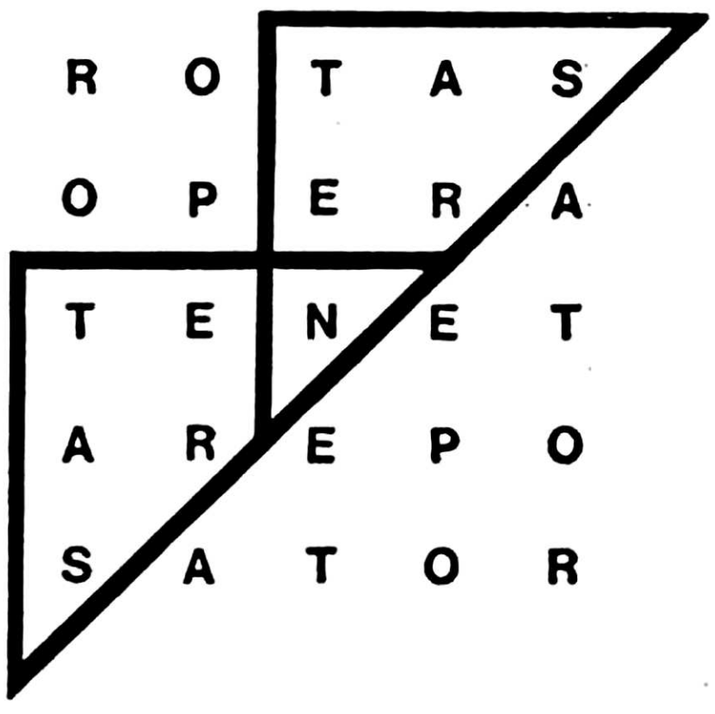
[7] C. Frank, *Deutsche Gaue* 25 (1924), 76; F. Grosser, *Ein neuer Vorschlag zur Deutung der Sator Formel* in *Archiv Rel. Wiss.* 24 (1926), 165 ff.; S. Agrell, *Runornas Talmystik och dess antika Förebild* in *Skrifter utgivna av Vetenskaps-Societeten i Lund* 6 (1927), 31 f.

[8] *Zur Sator-Formel* in *Commentationes Vindobonnenses* 1 (1935), 94.

noticed that the square yields PATER SOTER twice with two A's, two O's and the N left over. Since the N was a symbol of a point in time, this solution is acceptable and could reflect Mithraic as well as Christian terminology. I think, however, that the father as saviour would have been more in keeping with Mithraic thought than with Christian: Saturn, the father, was to come again to establish his *regnum*; Christ, the son, will come again to rule his.

Occasionally in ancient studies the amateur with no claim to expert knowledge makes important contributions or observes phenomena that have eluded even the most learned. And this is the case with Mr. Richard Frajola, one of my students, who became interested in the square. He first noticed that the NOSTER is the anagram of SOTERN, which obviously is SOTER plus N. He then continued to unravel a new anagram from the square: the letters can be arranged to produce PATER, SATRE and PERSER with two A's, four O's two T's and the N left over, all symbols of points in time. SATRE is Etruscan for Saturn[1] and PERSER is very close to Perses, the name of a Mithraic grade and an alternate name for Mithra. The six letters of SATRE plus N can be arranged to read SATERN, and one observes that they form letter triangles in the square that call to mind the vowel triangles in magic papyri.[2]





Implicit here, I believe, are the real names of Saturn and Mithra: PATER SOTERN, PATER SATERN and PERSER. So forbidden and numinous were they that they could not be pronounced or even directly written but had to be invoked in the square or in the PATER

[1] G. Herbig, *Satre-Saturnus* in *Philologus* 74 (1917), 446-59.

[2] Dornseiff, *Das Alphabet*. 39, 44, 58, 64; Preizendanz, *op. cit.*, *passim*.

NOSTER-A/O cross. These hidden and mana-filled names provided the basic purpose for the writing of the square. To know the real name of a deity was to have power over him and to be able to make him do one's bidding.[1] The square was powerful magic indeed.

In 1917 H. William[2] detected another anagram: ORO TE PATER twice with the complete palindrome SANAS once. That all the letters are consumed recommends this solution, and the idea expressed fitted any father-centered mystery religion. But a more obviously Mithraic anagram can be gotten starting with ORO. Another of my students, Mr. Henry Parker, noticed that the twelve corner letters of the square can be directly read ORO ASA twice.

R	O	T	A	S
O	P	E	R	A
T	E	N	E	T
A	R	E	P	O
S	A	T	O	R

Asa is the Umbrian for *ara*, 'altar'. I then saw that the remaining thirteen letters give PETRE twice with two T's and the N left over. We now have repeated the sentence ORO ASA PETRE: 'I pray at (your) altar, Petrus.' But there is, perhaps, also an openly Mithraic play on words here, for *aša* is the Middle Persian for 'cosmic order'. It is related to the Vedic *ṛta* and the Old Persian *arta* and conveys the same general idea as the Sumerian *me*, the Egyptian *ma'at* and the Greek *δίκη*.[3] The sentence then can be construed: 'I pray for (your) cosmic order, Petrus.' (The absence of the preposition *pro* may be explained as poetic license.) Could Petrus have been one of Mithra's

[1] For example the legend of Isis gaining mastery over Ra by learning his real name: E. A. W. Budge, *Egyptian Magic* (London, 1889), 137 ff.

[2] *Vossische Zeitung*, 19 June, 1917. E. von Welz in *Societas Latina* 6 (1938), 25 reported that a Professor H. T. and a Professor Langer came upon this reading independently of each other; an H. Bader in the *Münchner Post* of 1 November, 1925 also published this reading, apparently unconscious of William's previous discovery.

[3] L. A. Campbell, *Mithraic Iconography and Ideology* (Leiden, 1968), 64 f., 98, 100 f., 153, 323 f.

names, perhaps a hidden one? Mithra was born from the *Petra Genetrix* and was characterized as a rock-born god.[1] As the child always conserves some of the quality of the mother (see below, pp. 31-32), Mithra could have been thought of as a rock or stone. When one recalls that in the cult of Cybele, which was probably associated with Mithraism,[2] the gods were born from the *Petra Genetrix*,[4] that the concept of the *lapis philosophorum* was central to medieval alchemy, that the Christ was in ancient times termed a rock,[3] that in Rumanian folklore the Christ is born from a stone[5] and that the leontocephalus Saturnus-Aion (also Janus) carried keys, it is difficult not to wonder about the real source of *Matthew* 16 18-19.

At the beginning of this century W. Deonna[6] published some magic talismans from the island of Thasos which he dated not before the fifteenth century. One of them has the magic square in Greek letters on one side while on the reverse is the square of Saturn, a Cabbalistic number-square, with the names *Κρόνος* and *ΚΑΨΑΗΛ*. Deonna[7] recognized the latter name as a Greek transliteration of the angel *Qâfsi El* who was in charge of the last day of the week, as was Kronus. With such a juxtaposition of the ROTAS-SATOR square with a number-square, especially a square associated with Saturn, could not the magic square also have been a number-square?[8] It is true

[1] For a discussion of Mithra's rock-birth see Vermaseren, *Studia archaeologica van Hoorn*, 94 ff. (=*Mnemosyne* 4, 391 ff.). For representations of the rock-birth see Vermaseren, *CIMRM* I and II, *passim*; for *Petrae Genetrici* inscriptions see *ibid.*, *passim* and *CIL* III. 4424, 4543, 8679, 14354[30]; XII 7369.

[2] Cumont, *Oriental Religions*, 65; *The Mysteries of Mithra*, trans. T. J. McCormick (New York, 1956), 87, 179; *MMM* I, 161, n. 10, 280, n. 313 ff.; Vermaseren, *Mithrasdienst*, *passim*; *The Legend of Attis in Greek and Roman Art* (Leiden, 1966), *passim*.

[3] R. Eisler, *Kuba-Kybele* in *Philologus* 68 (1909), 118-52, 161-209, esp. 196 ff.; *Weltenmantel und Himmelzelt* (Munich, 1910), vol. II, pp. 411, 727 ff.; cf. M. Eliade, *The Forge and the Crucible* (New York, 1971), 21, 43-52, 208.

[4] I *Peter* 2 4; I *Corinthians* 10 4.

[5] A. Rosetti, *Colindele Romanilor* (Bucharest, 1920), 68; Eliade, *op. cit.*, 208.

[6] *Talismans magiques trouvés dans l'île de Thasos* in *Rev. Ét. Grec.* 20 (1907), 364-82.

[7] *Ibid.*, 373 ff.

[8] Meysing (*op. cit.*) put forth the proposition that it is a number-square, but he did not unravel the formula. Boris and May (*op. cit.*,) also see it as a number-square; unfortunately I have not as yet been able to obtain the article and cannot check if their findings duplicate mine in any way.

that the words are Latin and that the Romans did not have a ciphered number system, as did the Greeks and the Semites. But if the Latin letters are transliterated to the Greek, we can assign numbers to the square. And by so doing we find that a very significant number can be derived from the central word TENET.

T = *T* = 300
E = *E* = 5
N = *N* = 50
E = *E* = 5
T = *T* = 300

660

So far nothing astounding. But if we lengthen the Latin 'e' to transliterate it as η instead of ϵ, we have 666.

T = *T* = 300
E = *H* = 8
N = *N* = 50
E = *H* = 8
T = *T* = 300

666

We have seen how changes of vowel lengths result in changes in word meanings; evidently the same principle applies when trying for numinous numbers. The ϵ had a special quality among the ancients and was associated with Delphi, the place sacred to Apollo, the sun-god. In fact Plutarch devoted an essay to the subject — *De E apud Delphos* — in which he gave as one of the reasons for the relationship that the ϵ was the second letter of the Greek vowel system and therefore represented the sun, the second of the seven planets (*De E* 4).

The number 666 is, of course, the number and mark of the beast in *Apoc.* 13 18. By the practice of isopsephia it must be related to the name of a Roman emperor. Many are the candidates for this honor, among whom appear such 'bad' emperors as Gaius, Nero and Domitian.[1] Since, however, the 666 appears now in the ROTAS-

[1] C. Clemen (*Die Zahl des Tieres Apoc. 13, 18* in *Zeit. Neutest. Wiss.* 2 (1909), 109-14) thought the number 666 stood for the Hebrew rendering of *Καῖσαρ Νέρων*; the

SATOR square as a good number, it is impossible to associate its origin with a pejorative use of an imperial name. Therefore the most satisfactory proposal for the meaning of 666 seems to me to be that of H. Lilliebjörn who in a little noted yet important book[1] has shown that the number is equivalent to the adjective *AYPEΛION*.

A =	1
Y =	400
P =	100
E =	5
Λ =	30
I =	10
O =	70
N =	50
	666

Lilliebjörn related this number and mark of the beast and the man to the *crux decussata* that was marked on the foreheads of Mithraic initiates and pointed out that Mithraism flourished under emperors called Aurelius and that the family name Aurelius is derived from the Sabine *ausel*, meaning 'sun'[2]. The beast was an *AYPEΛION ΘHPION*. That the long 'e' of Aurelius was transliterated as an ϵ instead of an η caused him no trouble, for he showed that the name appears with an ϵ in the inscriptions and that the difference between the two values had disappeared in the papyri of Ptolemaic times.[3] The 666 in the TENET cross, then, may stand for *AYPEΛION ΣHMA*, solar symbol or sun-sign. Thus the mark of the beast had its origin

alternate tradition of 616, then, resulted from the dropping of the final ν of *Νέρων*. This alternate number is also explained as equaling *Γάϊος Καῖσαρ* (*Zeit. Kirchl. Wiss.* 6 (1885), 571). K. Holzinger (*Erklärung zu einigen der umstrittensten Stellen der Offenbarung Johannis und der Sibyllinischen Orakel mit einem Anhange über Martial XI, 33* in *Sitzb. Ak. Wiss. Wien, Philosophische-historische Klasse* 216, 3 (1936), 20-37) tied 666 to a 'Spitzname' of Diocletian, *Γαλατιανός*. The most attractive and, I believe, well-founded is that of E. Stauffer (*666* in *Coniectianea Neotestimentica* 40 (1947), 237-41) who showed that 666 equals the letters of the legends on some of Domitian's Greek coinage. I would also not reject the suggestion that the alternate 616 refers to Attis: P. Touilleux, *L'Apocalypse et les cultes de Domitien et de Cybèle* (Paris, 1935), 91; cf. P. Alfaric, *Rev. Hist. Rel.* 113 (1936), 295 ff.

[1] *Op. cit.*, 45.

[2] *Ibid.*, 36 f.; Quint. *Inst.* XI 2 31.

[3] *Op. cit.*, 45 ff.

elsewhere than in an imperial name, and Lilliebjörn's brilliant insight of forty years ago gains fresh support.[1]

Mr. Frajola, who is not a classicist and is therefore unimpressed with the fact that the Romans did not have a ciphered number system, tried to get significant numbers from the square by constructing a system of values for certain Latin letters taken from the Greek and Hebrew ciphered systems.[2]

A = 1	E = 5/8	L = 30	X = 60	R = 100	U = 6
C = 3	H = 5/8	M = 40	O = 70	S = 200	Y = 10
D = 4	I = 10	N = 50	P = 80	T = 300	

He applied these values to the letters of the square to get a total for each word and a total of all the words: 2,520.[3]

R = 100	O = 70	T = 300	A = 1	S = 200
O = 70	P = 80	E = 8	R = 100	A = 1
T = 300	E = 5	N = 50	E = 5	T = 300
A = 1	R = 100	E = 8	P = 80	O = 70
S = 200	A = 1	T = 300	O = 70	R = 100
671 +	256 +	666 +	256 +	671 = 2,520

[1] That the number of the beast was associated with a cross symbol of some sort is definitely shown by a fragment of S. Jeromes's *De Monogrammate* in which he comments on the alternate number 616, which was to him the number and the mark and the name of the Antichrist (G. Morin, *Rev. Bénédictine* 20 (1903), 215 ff.; R. Egger, *op. cit.*, 4-6: 'redactus (sc. numerus) autem in monogramma, id est quasi in unam litteram, et notam et nomen et numerum facit hoc signo ⋇ nota haec est, eo quod et nomen et numerum hac figura breviter notat. nomen autem hoc, id est Christi, per ⋌ graecum et ·ι· iota exprimitur ... intuere ergo in ea (sc. nota) et ·ι· recte stantem et ⁄ acutum transversum et in dexteram ascendentem, ⧹ gravemque descendentem trans ·ι· et acutum. de hiis ut sunt accentibus invicem transversis efficitur ⋇ graecum, sed supradictus gravis duobus suis capitibus circumflectitur ..., ut sit numeri nota, cuius nomen epismon. in duo autem opera haec sola est in nota id est in numeri notam et ⋌ graeci dimidium.' This *epismon* (⋇) equals the number 616: χ/600 + ι/10 + ς(*stigma*) /6 = 616. It is in this sign that the origin of the alternate number lies, not in any deficient readings of imperial names.

[2] Mr. Frajola used the Latin letter-equivalents of the Cabbalistic Hebrew letter-numbers found on page 342 of R. Cavendish, *The Black Arts* (New York, 1967).

[3] For independent evidence that the numbers and numerology of the square are Mithraic see Appendix. Jerphanion (*Rec. Sci. Rel.* 25 (1935), 217 f.), using the value of ω for the 'o', added the letters of the square to get 5,434. He then proceeded to compose sentences with Christian content in Greek that added up to this sum.

Then he did the same to the names of the seven Mithraic grades, using CRYPHIUS in place of NYMPHUS and MITHRA in place of PERSES to produce the same number as the total of the square.

C = 3	C = 3	M = 40	L = 30	M = 40	H = 5	P = 80
O = 70	R = 100	I = 10	E = 5	I = 10	E = 5	A = 1
R = 100	Y = 10	L = 30	O = 70	T = 300	L = 30	T = 300
A = 1	P = 80	E = 5	—	H = 5	I = 10	E = 5
X = 60	H = 5	S = 200		R = 100	O = 70	R = 100
—	I = 10	—		A = 1	D = 4	—
	U = 6			—	R = 100	
	S = 200				O = 70	
	—				M = 40	
					U = 6	
					S = 200	
					—	
234 +	414 +	285 +	105 +	456 +	540 +	486 = 2,520

Now 2,520 is exactly twice the number of days that the two witnesses will prophesy in *Apoc.* 11 3: 1,260. It is also 7 × 360; 7 is the number of the planets, of the tones of the seven tone musical scale, of the Mithraic grades, of the vowels of the Greek alphabet, of the days of the week and of the Greek wise men; 360 is the number of degrees in a circle, the symbol of Aion, the number of days in the Babylonian luni-solar year and the number contained in *ΜΙΘΡΑΣ*.

M =	40
I =	10
Θ =	9
P =	100
A =	1
Σ =	200
	—
	360

Furthermore, the sum of CORAX and PATER, the first and the last Mithraic grades, is 720, twice the degrees in a circle.

CORAX =	234
PATER =	486
	—
	720

If this *AΩ* sum is added to the 2,520 of the square, the result is the

same as the sum of the Mithraic grades when SOTERN (NOSTER) is used instead of PATER, PERSES instead of MITHRA, LEONTICA instead of LEO and NYMPHUS instead of CRYPHIUS: 3,240.

C = 3	N = 50	M = 40	L = 30	P = 80	H = 8	S = 200
O = 70	Y = 10	I = 10	E = 5	E = 5	E = 5	O = 70
R = 100	M = 40	L = 30	O = 70	R = 100	L = 30	T = 300
A = 1	P = 80	E = 5	N = 50	S = 200	I = 10	E = 5
X = 60	H = 8	S = 200	T = 300	E = 5	O = 70	R = 100
—	U = 6	—	I = 10	S = 200	D = 4	N = 50
	S = 200		C = 3	—	R = 100	—
	—		A = 1		O = 70	
			—		M = 40	
					U = 6	
					S = 200	
					—	
234 +	394	285 +	469 +	590 +	543 +	725 = 3,240

This sum equals 9 × 360; 9 is the number peculiar to Saturn, for the Cabbalistic square of Saturn is constructed of the numbers from 1 to 9 (see below, p. 24); it is also of numinous character since it is the number of months in the human gestation period.

Mr. Frajola then applied his numbering system to the SAUTRANE VALE of the Pompeian graffito with remarkable results.

S =	200	V =	6
A =	1	A =	1
U =	6	L =	30
T =	300	E =	5
R =	100		—
A =	1		
N =	50		
E =	8		
	—		
	666		42

In *Apoc.* 11 2, forty-two is the number of months that the gentiles will tread the holy city underfoot; it is also the number of months in $3\frac{1}{2}$ years; $3\frac{1}{2}$ days appears in *Apoc.* 11 9 and 11. The need for an extra 1 in the vocative of Saturnus to get 666 explains the strange spelling of the name. Had the 'a', 1, been simply inserted between the 'r' and the 'n', the name of a man, Saturanus, not of a god would have resulted. Consequently the 'u' had to be transposed to the first syllable

between the 'a' and the 't'. The inserting of an extra letter in the name of a god appears elsewhere in Mithraism, for it is reported that *MEIΘPAΣ* equals 365, the number of days in the solar year.[1]

M	=	40
E	=	5
I	=	10
Θ	=	9
P	=	100
A	=	1
Σ	=	200
		365

It must be noted that the 'e' is deficient in both instances of SAUTRANE and the 'le' is absent in the first VALE (see above, p. 4-5). I suspect that these letters were originally written but that they have disappeared in the course of centuries under the earth.

Mr. Frajola also noticed that 666 can be derived by the simple arithmetic process of casting out nines from the sums of the individual Mithraic grades.

CORAX	= 234 - 2+3+4 =	9 - 0
CRYPHIUS	= 414 - 4+1+4 =	9 - 0
MILES	= 285 - 2+8+5 =	15 - 6
LEO	= 105 - 1+0+5 =	6 - 6
MITHRA	= 456 - 4+5+6 =	15 - 6
HELIODROMUS	= 540 - 5+4+0 =	9 - 0
PATER	= 486 - 4+8+6 =	18 - 0

And I have observed that one can get 666 by casting out the nines from the horizontal and verticle sums of the Saturn square.[2]

[1] Hier. *Comm. in Amos* 3; Migne, *PL*, XXV, 1018.

[2] The Saturn square is perhaps the most ancient of the squares of the Cabbala for, although there are no instances of this number arrangement in western antiquity, it is found in the Chinese tradition perhaps as early as the twelfth century B. C.: M. Granet, *La pensée chinoise* (Paris, 1950), 173-208; *The I Ching*, trans, J. Legge (New York. 1963), 17 ff.

$$
\begin{array}{rccccl}
 & 4 & 9 & 2 & = 15 - 1+5 = & 6 \\
 & 3 & 5 & 7 & = 15 - 1+5 = & 6 \\
 & 8 & 1 & 6 & = 15 - 1+5 = & 6 \\
\approx & - & - & - & \approx & \\
15 & 15 & 15 & 15 & & 15 \\
 & - & - & - & & \\
 & 1 & 1 & 1 & & \\
 & +5 & +5 & +5 & & \\
 & - & - & - & & \\
 & 6 & 6 & 6 & &
\end{array}
$$

It might be objected that the casting out of nines would not have been so clearly understood before the introduction of Arabic numerals. To this it should be pointed out that (1) the Greek and Semitic systems are positional and decimal, that (2) the ancients knew well the relationship between 1-10-100-1,000, 2-20-200-2,000, etc. and that (3) we tend to conceive of numerical relationships within the framework of our system whereas peoples using other systems could have come to the same results as we do by slightly different routes.[1]

The number of the beast is also basic to the square of the Sun in the Cabbala, which is made up of the numbers from 1 to 36 arranged in six rows of six numbers each so that the rows and columns add up to 111 vertically, horizontally and diagonally; consequently the sum of all numbers is 666.[2] Van den Bergh van Eysinga[3] has identified the number as a triangle sum: 666 is the sum of all numbers from 1 to 36, which in turn is the sum of all numbers from 1 to 8. Lilliebjörn[4] has masterfully demonstrated that the Whore of Babylon seated on the beast in *Apoc.* 17 3 ff. must have been modeled on the tauroctonous Mithra. Since 666 is a triangle number whose base is 8, it is significant that the number of the beast upon whom the Whore of Babylon sits is 8: *καὶ αὐτὸς ὄγδοός ἐστιν* (*Apoc.* 17 11).

Again Mr. Frajola made important observations. First, the four consonants about the central N of the square add up to 360.

[1] That the ancients were aware of the relation between the unit, the decade, the hundred and the thousand is shown by Philo *De Dec.* 7; that the Arabic system is not needed to do arithmetic computations easily is shown by W. French Anderson, *Arithmetical Computations in Roman Numerals* in *CP* 51 (1956), 145-50.

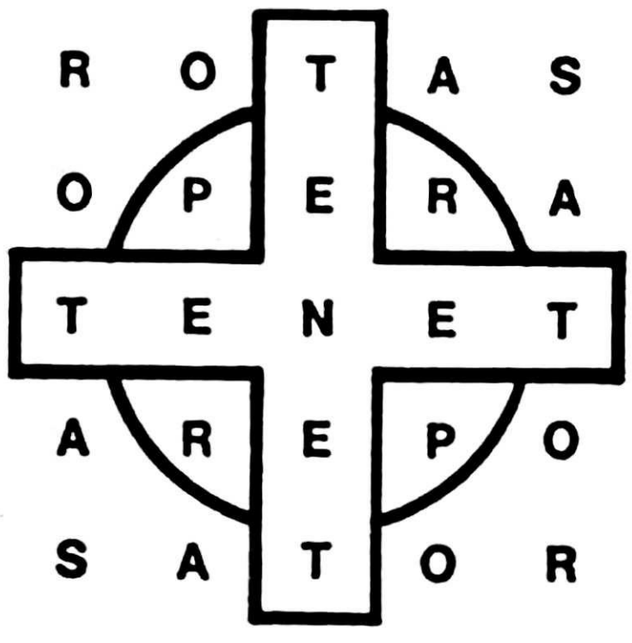
[2] For this and other Cabbalistic magic squares see E. A. W. Budge, *Amulets*, 394-97.

[3] *Die in der Apocalypse bekämpfte Gnosis* in *Zeit. Neutest. Wiss.* 13 (1912), 293-306.

[4] *Op. cit.*, 92 ff.

P = 80
R = 100
R = 100
P = 80
—
360

Therefore we have a literal Celtic cross in the square.



Second, the four consonants at the corners of the square total 600, which is the number of years in the *νῆρος* used by Berossus in his chronology.

R = 100
S = 200
S = 200
R = 100
—
600

If, as Mr. Frajola saw, we multiply this number by his *AΩ* number, 720 (CORAX + PATER), we get an amazing result: 432,000.

CORAX = 234 R = 100
PATER = 486 S = 200
— S = 200
R = 100
—
720 × 600 = 432,000

This is the total of years ruled by the ten antidiluvian kings of Mesopotamia according to Berossus.[1]

[1] *FGrH*, no. 680, pp. 375-77.

But, as I realized, this number can be gotten by two independent calculations without going outside the square. First, if the sum of the T's is multiplied by the sum of the circle-letters, PRRP, we get 432,000.

T =	300	P =	80
T =	300	R =	100
T =	300	R =	100
T =	300	P =	80
	1,200	×	360 = 432,000

Second, the 'o' has a long and a short value that is represented by two letters in Greek: the *o* which has the number value of 70 and the *ω* which is 800, a fact overlooked by Mr. Frajola in constructing his number system. The sum of the four O's then can be 3,200, which for the numerologist can be used as 32,000. The four A's equal 4, which can be considered 400,000. By adding the two higher values we get Berossus' number.

A =	1	O =	800
A =	1	O =	800
A =	1	O =	800
A =	1	O =	800
	4/400,000	+	3,200/32,000 = 432,000

This sum is three times the 144,000 that is the number of the children of Israel who are sealed in *Apoc.* 7 4,[1] one-fifth the 2,160,000 years that Berossus gives as the Age of the World[2] and one-tenth the 4,320,000 of the Indian cosmic cycle.[3]

The 2,520, which is the sum of all the letters of the square, can be also derived in more than one way. The four E's plus the N form an

[1] It is interesting, if not significant, that 144,000 days was the Baktun, a unit of time in the Mayan chronology.

[2] *FGrH*, *loc. cit.*, p. 367 f. P. Schnabel (*Die babylonische Chronologie in Berossos Babylonika* in *Mitt. Vorderasiatische Gesell.* 13 (1908), 7 f.) correctly deduced that the reported 215 myriads must be 216, that is 600 instead of 597 σάροι. The error must be scribal.

[3] F. G. Gundel, *Handbuch der mathematischen und technischen Chronologie* (Leipzig, 1906), 330 f.

ENE cross within the TENET cross. The value of this cross is 70; if the 7 inherent in the 70 is multiplied by the 360 of the PRRP, the product is 2,520. Thus the nine central letters equal all twenty-five.

E = 5	P = 80
E = 5	R = 100
E = 5	R = 100
E = 5	P = 80
N = 50	
—	
70/7 ×	360 = 2,520

A third way that this number can be got from the square becomes apparent when we realize that the Latin 't' can be transliterated by the Semitic *teth* which has the value of 9. The four T's of the TENET cross, then, can be recognized as 36. By multiplying this number by the 70 of the ENE cross we get 2,520. The nine letters of the TENET cross equal all twenty-five of the square.

E = 5	T = 9
E = 5	T = 9
E = 5	T = 9
E = 5	T = 9
N = 50	
—	
70 ×	36 = 2,520

Still another number, one with astronomical import, can be computed from the square by more than one independent calculation, for its factors — 6/60, 12, 360 and 432 — are present: 25,920. The Precession of the Equinoxes is in round figures 50'' a year. Therefore it requires 72 years for a displacement of 1° and 25,920 years for the heavens to pass through 360° to return to their original position. By multiplying the 6 of the RSSR by the 12 of the TTTT we get 72, which we can then multiply by the 360 of the PRRP to get the astronomically accurate Great or Platonic Year.

R = 100	T = 300	P = 80
S = 200	T = 300	R = 100
S = 200	T = 300	R = 100
R = 100	T = 300	P = 80
—	—	—
600/6 ×	1,200/12 = 72 ×	360 = 25,920

Or we can multiply the 60 of the RSSR by the 432 of the AAAAOOOO to get the same result.

R = 100	A = 1		O = 800	
S = 200	A = 1		O = 800	
S = 200	A = 1		O = 800	
R = 100	A = 1		O = 800	
600/60	4/400	+	3,200/32 = 432	

$$60 \times 432 = 25{,}920$$

The possibility that this number was programmed into the ROTAS-SATOR square means that the Precession of the Equinoxes may have been accurately known more than a millennium and a half before Newton calculated it at its exact value in the seventeenth century. It is a sobering thought that the vaunted Greek science may not have arrived at the correct value whereas Chaldaean astrology (astronomy?) may have had it exact and that through most of the period of Christian domination the number may have existed hidden in what was considered Black Magic.[1]

[1] The discovery of the Precession of the Equinoxes is attributed to the Hellenistic astronomer Hipparchus who in 129 B, C. observed that the star Spica was 6° from the autumnal equinox, whereas Timocharis had observed it in both 294 and 283 B. C. at 8° (Ptol. *Syntaxis* VII 2; *Des Claudius Ptolemäus Handbuch der Astronomie*, trans. and comm. K. Mantius (Leipzig, 1913), II, 15 f.; J. L. E. Dreyer, *A History of Astronomy from Thales to Kepler* (New York, 1953), 203). This means that in the interim between the observations there had been a displacement of 2°. Although there is no evidence that Hipparchus made the calculation of the yearly rate, these observations give a slippage of 45″ to 46″ a year. Ptolemy and most other ancients seem to have settled for a value of 1° in 100 years or 36″ a year, which makes the Great Year 36,000 years. Considering the inherence of 25,920 in the ROTAS-SATOR square, however, it is not beyond belief that the scientifically correct value for the precession was known to some. That this could well have been the case is shown by the fact that Ptolemy himself had deduced from the observations of Spica made by Timocharis that the star had moved 10′ in nearly twelve years, that is at a rate of about 50″ a year; and it is possible that Hipparchus had calculated the correct value (P. Tannéry, *Recherches sur l'histoire de l'astronomie ancienne* (Paris, 1893), 195).

Because of the disrepute into which the 'Pan-Babylonian' school of history has fallen, I hesitate to mention the work of H. V. Hilprecht who claimed to have found the number 12,960,000 in Assyrian mathematical texts: *The Babylonian Expedition of the University of Pennsylvania, Series A, Cuneiform Texts*, vol. XX, part 1 (1903), pp. 11-34. Since this is basically one half the 25,920 of the Precession of the Equinoxes, Hilprecht

One final number. If we multiply the 600 of the RSSR by the 3,600 of the PRRP, we get 2,160,000, the *νῆρος σάρων* of Berossus.

R = 100		P = 80
S = 200		R = 100
S = 200		R = 100
R = 100		P = 80
600	×	360/3,600 = 2,160,000

Or we can multiply the 600 of the RSSR by the 3,600 of the TTTT (T = 9) to arrive at 2,160,000.

R = 100		T = 9
S = 200		T = 9
S = 200		T = 9
R = 100		T = 9
600	×	36/3,600 = 2,160,000

In this way the eight peripheral consonants can be calculated to equal Berossus' Age of the World.

In view of the significant numbers that may be computed, all of them more than once, I believe that it is safe to propose that the square is basically a number-square that should be read as follows.

100	70 800	9 300	1	200
70 800	80	5 8	100	1
9 300	5 8	50	5 8	9 300
1	100	5 8	80	70 800
200	1	9 300	70 800	100

When Mr. Frajola created his values for certain Latin letters, he apparently did what the Latin speakers must have done to provide

suggested that 'an exact reckoning cf the precession had been achieved, which later was forgotten'. As I am neither an Assyriologist nor a mathematician, I cannot pronounce on his findings. In view of the existence of the number in the square, however, I suggest that Hilprecht be at least brought back into court.

themselves with a vehicle for their Cabbala: he borrowed the values of the existing Semitic and Greek ciphered number systems. Such a new system was certainly much more flexible than the parent systems, for many Latin letters must have had both Semitic and Greek values. For example: the 'u' not only had the value of 6 from the *waw*, but also the value of 400 from the υ; the 'y' not only was 10 from the *yod*, but also 400 from the υ; the 't' not only had the values 300 and 9 from the τ and the *teth* respectively, but also the value of 400 from the *taw*; the 'c' not only was 3 from the *gimel* and the γ, but also 20 from the κ and the *kaph*. In practicing isopsephia it is helpful to have all the possibilities available. Therefore the Latin numerologist may have noted that in transliterating Latin and Greek the 'u' and the *o* are often interchanged and the same is the case with the final 'm' and ν: Gaium = *Γάιον*, *Βυζάντιον* = Byzantium, etc. In the latter case that the *mem* and the *nun* in the Semitic alphabet, like the μ and the ν in the Greek, shared the middle spot lent an ambiguity to the letters that would have supported their sharing values. It is possible that in his Latin ciphered system the 'u' may have had the values of 6, 70 and 400 and that the' m' may have been both 40 and 50. The number of the beast and of the TENET, then, could have stood for an adjective meaning 'solar' without recourse to the Greek.

A =	1
U =	400
R =	100
E =	5
L =	30
I =	10
U =	70
M =	50
	666

The TENET cross was an AURELIUM SIGNUM.

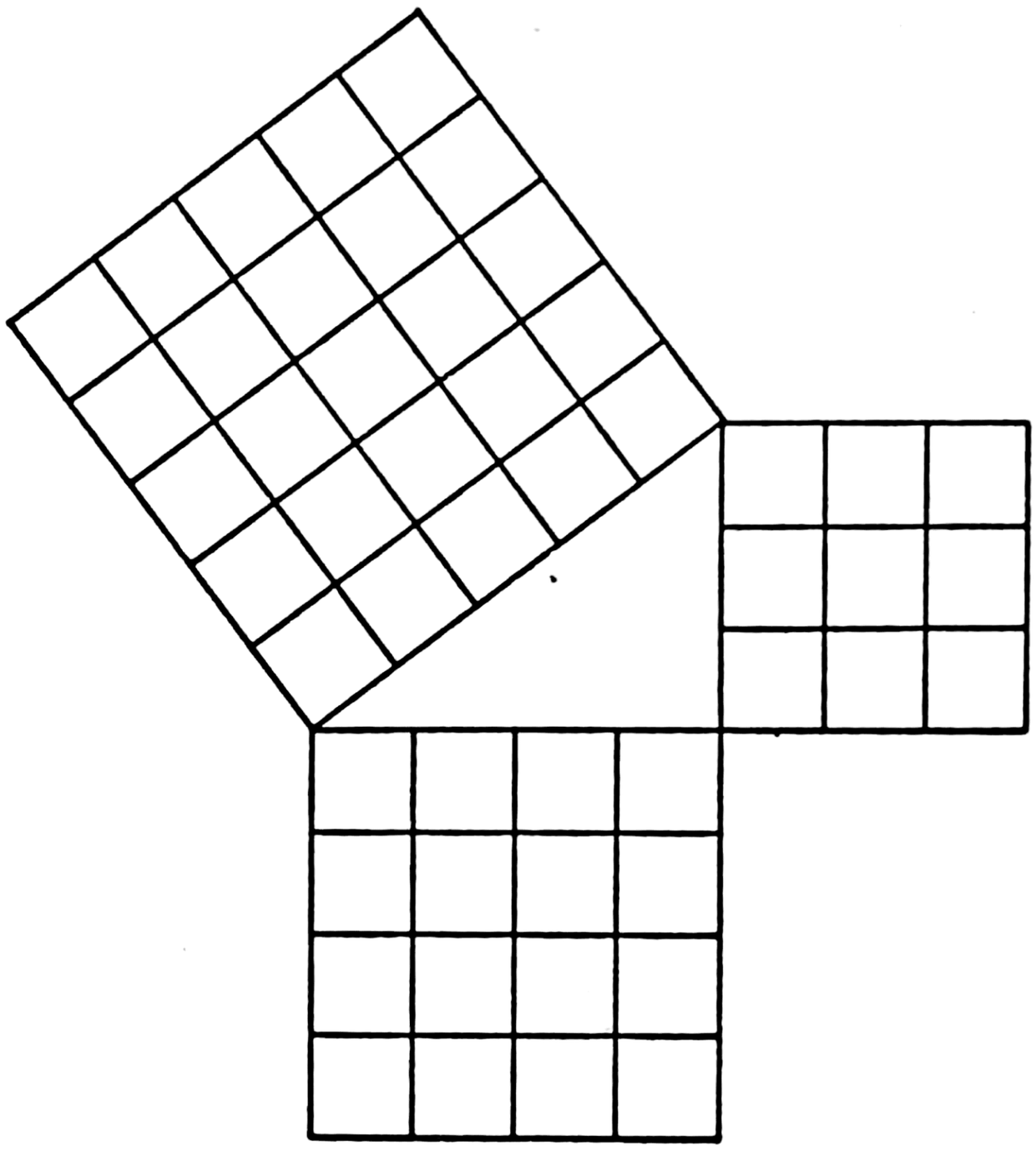
Up to this point three symbols, geometrical and literal have been noted in the ROTAS-SATOR complex: the solar cross (see above, pp. 18-20), the circle of eternal return (see above, pp. 24-25) and the triangle of the past, present and future (see above, pp. 13-16). In

addition the circle represented the unity of the godhead[1] and the triangle was the symbol both of the female element[2] and of a trinity, which in this case would have been Saturnus-Aion, Sol Invictus and Mithra. But the square is a symbol also, and in antiquity especially one which, like the magic square, was composed of twenty-five smaller squares. A passage from Plutarch (*De Is. et Os.* 56) is instructive:

Αἰγυπτίους δ' ἄν τις εἰκάσειε τῶν τριγώνων τῷ
καλλίστῳ μάλιστα τούτῳ τὴν τοῦ παντὸς φύσιν
ὁμοιοῦντας, ᾧ καὶ Πλάτων ἐν τῇ Πολιτείᾳ δοκεῖ
[τούτῳ] προσκεχρῆσθαι τὸ γαμήλιον διάγραμμα
συντάττων. ἔχει δ' ἐκεῖνο τὸ τρίγωνον τριῶν
τὴν πρὸς ὀρθίαν καὶ τεττάρων τὴν βάσιν καὶ πέντε
τὴν ὑποτείνουσαν ἴσον ταῖς περιεχούσαις δυναμένην.
εἰκαστέον οὖν τὴν μὲν πρὸς ὀρθίαν ἄρρενι, τὴν δὲ
βάσιν θηλείᾳ, τὴν δ' ὑποτείνουσαν ἀμφοῖν ἐγγόνῳ·
καὶ τὸν μὲν Ὄσιριν ὡς ἀρχήν, τὴν δ' Ἶσιν ὡς
ὑποδοχήν, τὸν δ' Ὧρον ὡς ἀποτέλεσμα. τὰ μὲν
γὰρ τρία πρῶτος περισσός ἐστι καὶ τέλειος·
τὰ δὲ τέτταρα τετράγωνος ἀπὸ πλευρᾶς ἀρτίου
τῆς δυάδος· τὰ δὲ πέντε πῇ μὲν τῷ πατρὶ πῇ
δὲ τῇ μητρὶ προσέοικεν ἐκ τριάδος συγκείμενα
καὶ δυάδος. καὶ τὰ πάντα τῶν πέντε γέγονε
παρώνυμα, καὶ τὸ ἀριθμήσασθαι πεμπάσασθαι
λέγουσι. ποιεῖ δὲ τετράγωνον ἡ πεντὰς ἀφ' ἑαυτῆς,
ὅσον τῶν γραμμάτων παρ' Αἰγυπτίοις τὸ πλῆθός
ἐστι, καὶ ὅσων ἐνιαυτῶν ἔζη χρόνον ὁ Ἆπις.

[1] Pla. *Tim.* 34.

[2] Eisler, *Philologus* 18 (1909), 127; U. Pestalozza, *Religione Mediterranea* (Milan, 1951), 245, n. 65; Eliade, *op. cit.*, 43 f., 207.



(Although Plutarch does not mention it, the ancients certainly were aware that the area of this triangle was 6 cubic units, that is the first perfect number.)[1] The Most Beautiful Triangle has 3 as its verticle leg, which represents the male element, Osiris; its base is 4, which is female and therefore stands for Isis; and the hypotenuse is 5, which represents the hermaphroditic combination of the two, the sun-god Horus. One calls to mind that Mithra had an androgynous quality, for Herodotus (I 131) and St. Ambrose (*Ep. c. Symm.* 1 18) have him as a Persian goddess, the iconography of the tauroctonous Mithra stemmed from that of Nike *βουθυτοῦσα*,[2] many images of Mithra seem to have a feminine aspect[3] and, as we have seen, the writer of the *Apocalypse* may have seen him as a woman. The number 5 by ancient Greek etymology has an extra measure of numen, for *πέντε* was cognate of *πάντα*, which signified the cosmos[4], and,

[1] For discussion and documentation of perfect numbers, see T. L. Heath, *A History of Greek Mathematics* (Oxford, 1921), I, 74-76.

[2] H. Gressmann, *Die Umwandlungen der orientalischen Religionen unter dem Einfluss hellenistischen Geistes* in *Vörtrage Bibliotek Warburg* 2 (1924), 191.

[3] Cumont, *MMM* I, 182.

[4] Griffiths, *Plutarch*'s *De Iside et Osiride* (Cardiff,, 1970), 509.

probably because the hand has five fingers, a verb meaning 'to count' was *πεμπάσασθαι*. H. Junker[1] has demonstrated that 5 was the sacred number of Zervan, whom he equated with Kronus-Aion. We will recall that 5/50 is the central number of both the Saturn and ROTAS-SATOR square and that 5 was the number of days in the Sacaea, the Babylonian New Year festival, and of the crosses held by Aion in the Alexandrine cult.[2] (The crucified Christ has five wounds.)[3] The number also seems to have been a corrected 7: 5 is the number of the true planets (the seven minus the sun and the moon), of the tones of the five tone musical scale, of the Mithraic grades not named for animals (the seven minus CORAX and LEO),[4] of the basic vowel sounds, of the days of the Babylonian week and of the actual number of Greek wise men.[5] That the square of the hypotenuse equals the sum of the squares of the other two sides gave 25 a special quality. What, however, the Mithraic connotations of the alleged fact that there were twenty-five letters in the Egyptian alphabet are is at this point impossible the surmise. But that the Apis bull had a maximum life-span of twenty-five years has a meaning within a Mithraic context, for that length of time was an Apis period within which the phases of the moon fell on the same day[6] and the moon was the planet of Apis, Isis and Mithra. A square of twenty-five equal squares, as the sum of the masculine square of nine units and the feminine of sixteen, was in itself full of mana and symbolized, I would think, a totality. Interestingly enough the number 25 stands at the center of the Venus square of the Cabbala.

Four and a half decades ago E. Peterson[7] observed that in the Iranian-Chaldaean theology there was a four-in-one god and that the Graeco-Roman theologians identified gods with the four seasons and

[1] *Op. cit.*, 153 f.

[2] A. J. Wesinck, *The Arabic New-Year and the Feast of the Tabernacles* in *Verhandelingen der Koninklijke Akademie van Wettenschappen*, n. s., 25 (1925), 39 ff.; see our p, 3, n. 3.

[3] Junker, *op. cit.*, 153.

[4] For the significance of this see Campbell, *op. cit.*, 68 f.

[5] Plut. *De E* 3.

[6] Griffiths, *Plutarch's De Iside*, 511.

[7] *ΕΙΣ ΘΕΟΣ* (Göttingen, 1926), 241-53.

spoke of the unity of the four. And more recently R. C. Zaehner[1] had this to say about Zervan: '... the supreme god of the Zervanite Zoroastrians was conceived of as tetramorphous, comprising the four hypostates of Time, Space, Wisdom and Power.' As the triangle is the obvious geometrical expression of a trinity, a square is the symbol of a quaternity. Mithraism, like Christianity,[2] could well have recognized the female. Isis was the mother of the sun-god Horus, the cult of Cybele was somehow attached to Mithraism and the *locus classicus* for ancient syncretism, Apuleius *Metamorphoses* XI 5, equates Isis with the Magna Mater. Was, then, the ROTAS-SATOR square itself a symbol of a 3 + 1 quaternity: the Saturnus-Sol-Mithra triad plus the Earth Mother (Cybele, Isis, etc.)? Or perhaps it was the representation of a 3 + 1 quaternity in which Arimanius (Ahriman), the Iranian god of darkness and the principle of evil, was the fourth person? Another possibility, suggested by Plutarch's statement that the 4 is composed of two dyads, is that the square was the representation of a 2 + 2 quaternity: male and female, good and evil. It is not beyond belief that there was an element of quaternity in Mithraism, for, although the cult's initiates were all men, they certainly did not ignore the female[3] and, as followers of a religion that had its roots in Iranian theological speculation, they must have deified evil.[4] Be that as it may, the square was an appealing symbol in antiquity, for even the writer of the *Apocalypse* used it for the shape of the Christian cosmic city whose walls measured 144 ells (*Apoc.* 21 16-17): καὶ ἡ πόλις τετράγωνος κεῖται ... καὶ ἐμέτρησεν τὸ τεῖχος αὐτῆς ἑκατὸν

[1] *Zurvān*, 219; see also p. 225.

[2] For penetrating comments on the psychological aspects of the doctrine of the Assumption of the Virgin Mary see *The Collected Works of C. G. Jung. The Archetypes and the Collective Unconscious* (Bollingen Series XX: Princeton. 1969), vol. IX, part I, pp. 107-09, 114, 388 and *The Collected Works of C. G. Jung, Aion, Researches into the Phenomenology of the Self*, vol. IX, part 2, p. 87.

[3] This is obvious from the numerous *Petrae Genetrici* inscriptions and the connection of the cults of Mithra and Cybele: see p. 17, nn. 1 and 2.

[4] This is made manifest by the Deo Arimanio dedications: Cumont, *MMM* II, inscr. no. 27, inscr. no. 323, inscr. no. 324; Vermaseren, *CIMRM* I, mon. 369, mon. 222. mon. 1173-fig. 461. Unlike Satan, Ahriman was not *extra ecclesiam*. See Appendix for Seth, a god of evil, as a Mithraic deity.

τεσσεράκοντα τεσσάρων πηχῶν.... In contrast the Iranian cosmic city was circular.[1]

The analogies between Mithraism and the ROTAS-SATOR square on the one hand and the *Apocalypse of St. John* on the other are, as we have seen, striking and many. Lilliebjörn, to his eternal credit, has pointed the way and in an excursus to his book has illumed the subject by detecting many more similarities between the last book of the New Testament and Mithraism. Two instances in particular must be mentioned, for they strengthen my case. Like Saturnus-Aion the Christ holds the keys in *Apoc.* 1 18: καὶ ἔχω τὰς κλεῖς τοῦ θανάτου καὶ τοῦ ᾅδου. And the beast from the sea in *Apoc.* 13 2 may have had as its model the Mithraic high god: καὶ τὸ θηρίον ὃ εἶδον ἦν ὅμοιον παρδάλει, καὶ οἱ πόδες αὐτοῦ ὡς ἄρκτου, καὶ τὸ στόμα αὐτοῦ ὡς στόμα λέοντος. καὶ ἔδωκεν αὐτῷ ὁ δράκων τὴν δύναμιν αὐτοῦ.... Many of the attributes of Saturnus-Aion are here: the mouth (face) of a lion, the animal feet and the serpent. The leopard-like quality of the beast, I believe, was due to the fact that the god was often covered with signs of the zodiac, lion-masks, thunderbolts and eyes and therefore possessed a spotted appearance. The beast from the sea, the beast from the land and the woman seated on the beast, then, may all have been based on Mithraic iconography, symbolism and numerology.

In recent years attempts have been made to analyze the problems of constructing the ROTAS-SATOR square. Hugh Last,[2] Duncan Fishwick[3] and C. D. Gunn[4] have shown that it was a very difficult task to arrange the letters of the PATER NOSTER-A/O cross into a square that would render meaning when read in all directions; there are just too few five-letter words in the Latin language that contain the letters of the cross and that are either complete palindromes or give recognizable words read forwards and backwards.

[1] H. P. L'Orange, *Studies in the Iconography of Cosmic Kingship in the Ancient World* (Oslo, 1953), 9 ff.; *Expressions of Cosmic Kingship in the Ancient World* in *The Sacral Kingship* (Leiden, 1959). 481 ff.

[2] *JRS* 44 (1954), 112-15; *The Rotas Sator Square: Present Position and Future Prospects* in *JThS*, n. s., 3 (1952), 92-97.

[3] *HThR* 57 (1964).

[4] C. D. Gunn. *The Sator-Arepo Palindrome. A New Inquiry into the Composition of an Ancient Word Square* (unpublished dissertation), Yale University, 1969.

But if the square originated as a number-square, the very numbers to be programmed demanded the use of a limited supply of letters and imposed a certain order on them. Consequently I reconstruct the composing of the square as follows. The Mithraic numerologists probably were long familiar with the Saturn square and the square of the Sun (as well as other number-squares that are thought to have originated in the medieval Cabbala). Since these squares contain 666, that number from the very outset possessed a high degree of numen. And previous to making the square the *ignoti numerologi* had worked the seven Mithraic grades to get the first and the last names to add up to 720, to have the sum of all the names to come to 2,520 and to arrive at 666 by casting out nines. In practicing isopsephia they found that AURELIUM/*AYPEΛION* and TENET/*THNHT* equaled the number, an astounding discovery for believers in what was essentially a 'Sonnenreligion', since an adjective meaning 'solar' had the same number as a word that could be written twice to form a solar cross. For reasons explained above, the T's, the E's and the N added to the mystery. It is also a fact that the only five-letter complete palindrome from which one can get 666 is TENET. The numerologists saw immediately that the four T's gave them 1,200/12 and that the ENE cross was 70/7. By adding the letters for 360 they introduced the name and number of Mithra, produced a Celtic cross and had the factors to compute 2,520 and 432,000. One of the few ways to get 360 in four letters is PRRP. The numerologists certainly already knew that AAAA plus OOOO was 432,000/432 and the positioning of these letters was almost automatic. All that was lacking to complete the square were four letters that equaled 6/60/600. By this time the choice of RSSR was unavoidable. With this store of numbers based on the Babylonian sexagesimal system the accurate Great Year and the Age of the World were easily calculated. Soon after the completion of the square it was noticed that the sum of all twenty-five letter-numbers equaled both the sum of all the grades, the product of the ENE cross times the PRRP circle and the product of TTTT times the ENE cross. To the ancient mind, if not necessarily to the modern,[1] the truly miraculous part of the whole process was that

[1] P. Veyne, in a somewhat over-argued yet perceptive article (*Le carré Sator ou beaucoup de bruit pour rien* in *Bull. de l'Assoc. G. Budé*, 4th ser., 1968, 426-60), has held that

it resulted (1) in direct readings possessing theological meanings and (2) in many Mithraic anagrams and hidden names that left only A's, O's, T's and the N over. In the course of time the numerologists found that the sum of the square plus CORAX and PATER equaled the sum of the grades if SOTERN and other names were substituted for some of the grades. It may well have been this number-play that accounts for these alternate names. One can easily imagine the potency of the square as a theological weapon and a proof of faith. Although it contains the PATER NOSTER-A/O cross and had no patently un-Christian meanings (Christians used pagan theophorous names such as AREPO may have been ;see above, pp. 12-13), the ROTAS-SATOR square was much too impregnated with Mithraic thought to be completely assumed into the conquering faith. Much of it had to be, apparently with good success, dropped down the Orwellian memory-hole.

It remains to comment briefly on the where, the when and the who of the square's composition. There are, I believe, three possibilities for the locus of its origin: Gaul, Egypt and Italy. Carcopino argued for the first on the grounds of the supposed Celtic etymology of *arepus/arepum*. But, as Atkinson[1] has pointed out, *arepennis/arapennis*, on which the Celtic origin of AREPO depends, may well be Italic. That both the wheeled plow and the wheeled harvesting machine are attested for Gaul, however, strengthens the argument for Gaulish provenience. On the basis of AREPO as a proper name,

the anagrams drawn from the square are *a posteriori* events and are therefore in no way remarkable. Since I have shown that many Mithraic anagrams can also be derived and I hold that the square in origin is a number-square, I accept Veyne's perspicacious observation. Therefore any sacred names that may have arisen were also *a posteriori* to the composition of the formula. Veyne maintains that the square is purely a palindrome, a 'jeu d'esprit' so to speak. The weakness of this latter contention is that he does not give any direct or boustrophedon interpretations of the square nor does he assign a meaning to AREPO. One may rightly ask how much 'esprit' would exist in an inane palindrome. The boustrophedon reading— SATOR OPERA TENET—and the various suggested direct readings, if I am correct in my analysis, must also have been *a posteriori*. Although there can be little doubt that the boustrophedon reading was recognized in antiquity, we can never be sure about the direct readings until we finally know what AREPO means.

[1] *J. Eccl. Hist.* 2 (1951), 13, n. 3.

Griffiths in turn proposed Egyptian, specifically Alexandrine, origin. Although I would be the first to admit Egyptian influence, I must point out that the language of the square is Latin, not Greek which would indicate that it came from the western part of the Empire. I prefer Italy as the square's birthplace, mainly because the earliest examples come from Pompeii. (Mithraism existed in Italy in the first century, for Statius (*Theb.* I 717 ff.) mentions seeing the tauroctonous Mithra there.) In regard to the date of its composition, we have a *terminus ante quem* of A.D. 79, or even earlier if we accept Maiuri's observation that the graffiti from the Palestra, where the square was found, date for the most part before A.D. 62.[1] With an Italian origin we can also set a *terminus post quem* at c. 67/66 B.C. when the Cilician pirates introduced the mysteries to Italy and thus gave an impetus to western Mithraism.[2] As for the originators of the ROTAS-SATOR square, little can be said except that they were undoubtedly intelligent and well educated men who had attained the highest Mithraic grades. Like the *sacerdos* from Milan, each of them could boast that he was *studiosus astrologiae.*[3]

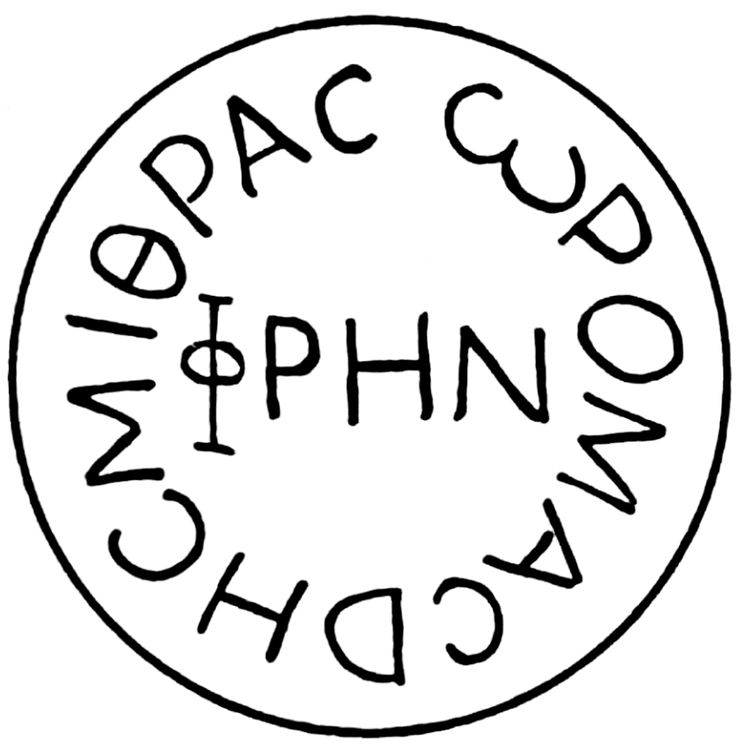
[1] Maiuri, *Not. Scav.*, 1939, 165 ff.; *Sulla datazione del 'Quadrato magico' o criptogramma cristiano a Pompei* in *Rend. Acc. Arch. Nap.* 28 (1953), 101-11.

[2] Plut. *Pomp.* 24; Cumont, *MMM* I, 224; *Mysteries*, 36 f.

[3] *CIL* V, 5893.

APPENDIX

As this paper was being completed, Mr. Frajola called my attention to a Mithraic amulet found at Verulamium.[1] It was originally a silver denarius of Augustus that had been modified. The legend on the reverse side was removed, leaving the figure of Tarpeia overwhelmed by shields, which then represented Mithra's rock-birth. The obverse side was changed by having everything removed and a new inscription incised: *ΜΙΘΡΑΣ* and *ΩΡΟΜΑΣΔΗΣ* in a circle about the edge and the word *ΦΡΗΝ* across the center.



All the letters are Greek except the Latin *D*, which is directly at the bottom of the coin if we hold it horizontal to read *ΦΡΗΝ*; therefore seven letters extend on each side of the *D* to complete the circle.

The first question to come to mind is what the Greek word for 'mind' is doing in company with the names of two Persian gods. A logical answer would be that, if only obliquely, it too represents a deity.[2] It could not have escaped the ancients that the Latin equivalent of *φρήν*, *mens*, is very close to the names of certain gods:

[1] Vermaseren, *CIMRM* I, mon. 827-fig. 221; Mattingly, *Num. Chron.* 12 (1932), 54 ff.; R. and T. Wheeler, *Verulamium, a Belgic and two Roman Cities* (London, 1936), 211 ff.; no. 8 and pl.LXVI; P. Corder, *Verulamium Museum Publications* (1938), 17 and fig. 10; E. and J. R. Harris, *The Oriental Cults in Roman Britain* (Leiden, 1965), 46.

[2] For an example of such thinking see *loc. cit.*, n. 7.

Minerva,[1] the Phrygian Men[2] and the Egyptian Min.[3] I believe, therefore, that *ΦPHN* is in fact a name for either Men or Min, or even both. Men was a moon-god who appears in Mithraism as Men himself[4] or as Attis Menotyrannus;[5] the Egyptian Min, on the other hand, was associated with the sun-god Horus.[6]

Whatever the meaning of *ΦPHN*, the strange combination of words suggests that number magic may be present. By giving the Greek letters their recognized number values, Mr. Frajola came tantalizingly close to 2,520 when he added them up: 2,437.

M =	40	Ω =	800	Φ =	500
I =	10	P =	100	P =	100
Θ =	9	O =	70	H =	8
P =	100	M =	40	N =	50
A =	1	A =	1		—
Σ =	200	Σ =	200		
	—	D =	0		
		H =	8		
		Σ =	200		
			—		
	360 +		1,419 +		658 = 2,437

Working with the numerology of the charm, I then realized that significant numbers can be gotten if the values of the Latin ciphered system were applied to the Greek letters. Both the 'r' and the ρ are transliterated in the Semitic alphabet as *resh*, which has the value of 200. By using this value for the P in *ΦPHN* and by using the 40 value for the N we get very close to the desired number.

[1] That the name of Minerva may be of Etruscan origin would not have detracted from its connection with the idea of mind and memory.

[2] For a discussion of Men generally see E. N. Lane, *Corpus Monumentorum Religionis Dei Mensis* (Leiden, 1972); *A Re-Study of the God Men* in *Berytus* 15 (1964), 5-58 and 17 (1967-1968), 13-47 and 81-106. For a discussion of Men in Mithraism see Vermaseren, *A Unique Representation of Mithras* in *Vigiliae Christianae* 6 (1950), 142-56; *Mithrasdienst*, 23, 60, 104 f. It is significant that Lane sees strong Persian influences on Men.

[3] For a discussion of Min see C. J. Bleeker, *Die Geburt eines Gottes* (Leiden, 1956).

[4] Cumont, *MMM* I, 174, 213, 233, n. 1; Vermaseren, *CIMRM* I, mon. 541-fig. 151.

[5] Cumont, *MMM* II, inscr. no. 19, inscr. no. 21; Vermaseren, *CIMRM* I, mon. 512, mon. 515, mon. 522, mon. 378.

[6] Plut. *De Is. et Os.* 56; Bleeker, *op. cit.*, 15 ff.

M =	40	Ω =	800	Φ =	500
I =	10	P =	100	P =	200
Θ =	9	O =	70	H =	8
P =	100	M =	40	N =	40
A =	1	A =	1		
Σ =	200	Σ =	200		
		D =	0		
		H =	8		
		Σ =	200		

360 + 1,419 + 748 = 2,527

This sum breaks down to two numinous numbers: 2,520 and 7. But there are other possibilities. We have not as yet used the D because it is a Latin letter. If we consider it as a Δ, 4, and at the same time give the H's the value of 5, we get 2,525.

M =	40	Ω =	800	Φ =	500
I =	10	P =	100	P =	200
Θ =	9	O =	70	H =	5
P =	100	M =	40	N =	40
A =	1	A =	1		
Σ =	200	Σ =	200		
		D =	4		
		H =	5		
		Σ =	200		

360 + 1,420 + 745 = 2,525

This sum in turn breaks down into either 2,520 and 5 or two 25's. The D as a Roman numeral has another value, 500, which the numerologist would not have hesitated to use as a 5. If, then, we include the D as a 5 and return the H's and the N to their respective recognized values of 8 and 50, we get 2,542.

M =	40	Ω =	800	Φ =	500
I =	10	P =	100	P =	200
Θ =	9	O =	70	H =	8
P =	100	M =	40	N =	50
A =	1	A =	1		
Σ =	200	Σ =	200		
		D =	5		
		H =	8		
		Σ =	200		

360 + 1,424 + 758 = 2,542

This sum can be thought of as 25 and 42. The Latin *D* was not used by the fashioner of the amulet from lack of knowledge, as has been suggested,[1] but was instead purposely employed to allow it either to be ignored or to be included as a *Δ* or to be considered as a Roman numeral.

One may now ask if there are anagrams in the nineteen letters and what kind they would be. Since the inscription contains divine names, it would be logical to expect names of deities, either attested or secret. In one unscrambling I get *ΩΡΦΗΟΣ* (*'Ορφεύς*)/*ΣΩΡΟΦΗ* (*Σάραπις*), *ΣΗΘ*, *ΜΑ*, *ΜΙΝ* and *ΡΑ* with a *Ρ* and a *Σ* and the *D* remaining; in a second anagram I get *ΗΡΜΑΣ*, (*'Ερμῆς*), *ΩΦΡΟΔΙΘΑΣ* (*'Αφροδίτη*) and *ΜΗΝ* with a *Ρ* and a *Σ* left over. In the first anagram the secret name of Serapis with a feminine ending suggests hermaphroditism, the Cappadocian Ma represents the female element, the Egyptian Seth is the principle of evil, for he is the adversary of Osiris and Horus and the wellspring of confusion, and the Egyptian Min-Ra is the Sun. We can be sure that the Mithraic theologians would have made much of the hidden names of Serapis and Orpheus being anagrams of each other.[2] In the second anagram the presence of the secret names of Hermes and Aphrodite with the same endings lends more than a hint of androgyneity, whereas the Phrygian Men represents the Moon. Of course Men and Min in these anagrams support my proposal that the *ΦΡΗΝ* stands for both deities.

But what are we to make of the left-over letters, for they do not represent points of time like those in the square? I would think that they keep their number quality. In the first anagram we have the option of disregarding the *D*, since it is a Roman numeral. Consequently the residual numbers in both anagrams are the same: *Ρ* and *Σ*. As the 's' and the *σ* are transliterated into the Semitic alphabet as *shin*, which is 300, both the *Σ* and the *Ρ* have two values. By adding the possible combinations of these two-value letters we get the following results.

[1] Mattingly, *loc. cit.*

[2] For Orphism and Mithraism see Cumont. *Mithra et Orphisme* in *Rev. Hist. Rel.* 109 (1934), 63 ff; Vermaseren, *Mithrasdienst*, 97 ff., 131; *Mithras*, 123-25.

$P =$	100	100	200	200
$\Sigma =$	200	300	200	300
	300/3	400/4	400/4	500/5

We have calculated what are essentially the proportions of the sides of the Most Beautiful Triangle. In addition to the obvious circle-symbolism, then, there is a number triangle in the charm.

One last observation. In the same way that the twenty-five letters of the magic square equal the number of years in the lunar cycle of the Egyptian solar calendar, the nineteen letters of the amulet equal the years in the Metonic lunar cycle of the Babylonian luni-solar calendar.[1] The analogies with the ROTAS-SATOR square are complete; the amulet from Verulamium is in every way the square's circular counterpart.[2]

[1] See O. Neugebauer, *The Exact Sciences in Antiquity* (Providence, Rhode Island, 1957), 7, 95, 102, 140, 142, n. 3 for discussion of these two cycles.

[2] There is an amulet with *MEIΘPAΣ* on it : Cumont, *MMM* II, fig. 405. Besides equalling 365, its seven letters break down to (1) *ΣEΘ/ΣIΘ*, *MI/ME* and *PA* or (2) *ΣEIΘ* and *PA* with the *M* left over. The ROTAS-SATOR square in turn yields ORPEA twice. SET twice and RA twice with two T's ,two O's and the N remaining. Also APES (Apis) twice, RA twice, RE twice with four O's, four T's and the N left over.

BIBLIOGRAPHY OF THE ROTAS-SATOR/SATOR-ROTAS SQUARE

Agrell, S. *Runornas Talmystik och dess antike Förebild* in *Skrifter utgivna av Vetenskaps-Societeten i Lund*, 6, 1927.

Ahrens, W. *Altes und Neues aus der Unterhaltungsmathematik*. Berlin. 1918.

(Albertus Magnus) *Approved and Natural Egyptian Secrets, for Man and Beast . . . translated from the German*. Harrisburg, Pennsylvania, 1875.

Andrieu *Le 'Carré Sator', étude nouvelle* in *Mémoires de l'Académie des Sciences, Arts et Belles-Lettres de Dijon*, 1934, xxxii ff.; 1935, xv f.; 1937, xxx ff.

Anonymous (E. M.) *L'Intermédiaire des Chercheurs et Curieux*, 3 (1866), 522.

Anonymous (L. A.) *L'Intermédiaire des Chercheurs et Curieux*, 3 (1866), 390.

Anonymous (R. D.) *L'Intermédiaire des Chercheurs et Curieux*, 3 (1866), 591.

Anonymous (T.) *On Palindromes* in *New Monthly Magazine and Literary Journal*, 2 (1921), 170 ff.

Anonymous *Tag*, 30 April, 1926.

Atkinson, D. *The Sator Formula and the Beginnings of Christianity* in *Bulletin of the John Rylands Library*, 22 (1938), 419 ff.

——. *The Origin and Date of the 'Sator' Word-Square* in *Journal of Ecclesiastical History*, 2 (1951), 1 ff.

Aymar, D. *Contribution à l'étude du folklore de la Haute-Auvergne: Le sachet accoucheur et ses mystères* in *Annales du Midi*, 38 (1926), 273 ff.

Bader, M. *Münchner Post*, 1 November, 1925.

Babudri, F. *Il crittogramma pompeiano in una leggenda platonica di Salerno* in *Iapygia*, 17 (1946), 105 ff.

Baldi, A. *La Pompei giudico-cristiano*. Cava dei Tirreni, 1964.

Bauer, J. B. *Die SATOR-Formel und ihr 'Sitz im Leben'* in *Adeua Mitteilungen*, 31 (1972), 7 ff.

Beauvois, F. H. A. *Arepo* in *Revue Internationale d'Onomastique*, 22 (1970), 156 ff.

Biedemann, H. *SATOR AREPO TENET OPERA ROTAS* in *Handlexikon der magischen Künste von der Spätantike bis zum 19. Jahrhundert*. Graz, 1968.

Bloch, A. *Le SATOR, carré magique. Nouvelle essai de déchiffrement*. Unpublished manuscript addressed to *Bibliothèque Archéologique à Pompéi* and dated at Rouen, France, 19 August, 1960.

Bodman, Jr., H. J. *The Sator Formula: an Evaluation* in *Laudatores Temporis Acti. The James Sprunt Studies in History and Political Science*, 46 (1964), 131 ff.

den Boer, W. *De Sator-inscriptie als Voorwerp van Teamwork* in *Hermeneus*, 21 (1950), 115 ff.

Bombaugh, C. C. *Oddities and Curiosities of Words and Literature*. New York, 1961.

Boris, R. and May, L. P. *Le pythagorisme secret du Sator arepo. Lettres et nombres* in *Recueil des Notices et Mémoires de la Société Archéologique du Departement de Constantine*, 69 (1955-1956), 95 ff.

Budimir, M. *Quadratum magicum retractatur* in *Ziva Antika*, 8 (1958), 301 ff.

Burrows, M. *What Mean these Stones*. New Haven, Connecticutt, 1941.

Carcopino, J. *Le christianisme secret du carré magique* in *Museum Helveticum*, 5 (1948), 16 ff.

——. *Études d'histoire chrétienne. Le christianisme secret du carré magique: les fouilles de Sainte Pierre et la tradition*. Paris, 1953.

——. *Encore le carré magique* in *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres*, 1955, 500 ff.

Carmignac, J. *Recherches sur le 'Notre Père'*. Paris, 1969.

Carnoy, A. *La Nouvelle Clio*, 10-12 (1958-1962), 252.

Cipolla, C. *Per la storia della formula Sator Arepo* in *Atti Accademia delle Scienze di Torino*, 29 (1893-1894), 209 ff.

Corte, E. C. *Le carré magique de Pompéi* in *Humanités. Revue d'enseignement secondaire et d'éducation*, 27 (1954-1955), 5 f.

Collingwood, R. G. *The Archaeology of Roman Britain*. London, 1930.

Couchoud, P.-L. and Audin, A. *Le carré magique. Une interprétation graphique* in *Latomus*, 17 (1958), 518 ff.

Courtney, M. A. *Cornish Folk-Lore Part III* in *Folk-Lore Journal*, 5 (1887), 177 ff.

Crozet, L. *Credo secret antique dans un carré magique* in *Bulletin de l'Association Guillaume Budé*, 4th ser., 1960, 572 ff.

Crum, W. E. *Coptic Studies* in *Egyptian Exploration Fund. Archaeological Report*, 1897-*1898*, ed. by F. Ll. Griffiths. London.

——. *Coptic Monuments, Catalogue général des antiquités égyptienne du Musée de Caire*. vol. 4, Cairo, 1902.

Cumont, F. *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres*, 1937, 93.

——. *Atti della Pontifica Accademia Romana di Archeologia. Rendiconti*, 13 (1937), 7 ff.

Curvers, A. *Le carré magique* in *Itinéraires*, 120 (1968), 33 ff.; 121 (1968), 168 ff.; 122 (1968), 329 ff.; 123 (1968), 87 ff.; 124 (1968), 93 ff.; 125 (1968), 258 ff.; 126 (1968), 117 ff.; 128 (1968), 111 ff.

Dain, A. *Au dossier du mot carré 'Sator'* in *Revue des Études Latines*, 29, 1951, 84 f.

Daniélou, J. *Primitive Christian Symbols*. London, 1964.

Darmstaedter, E. *Die Sator-Arepo-Formel und ihre Erklärung* in *Isis*, 18 (1932), 322 ff.

Daube, D. *'Arepo' and the 'Sator' Square* in *Expository Times*, 62 (1951), 316.

——. *The New Testament and Rabbinic Literature*. London, 1956.

Della Corte, M. *Notizie degli scavi di antichità communicate alla R. Accademia Nazionale dei Lincei*, 1929, 447 ff.

——. *Osservatore Romano*, 14 February, 1937.

——. *Giornale d'Italia*, 12 February, 1937.

Della Corte. *Il crittogramma del 'Pater Noster'* in *Rendiconti della R. Accademia di Archeologia Lettere ed Arti*, Naples, 17 (1937), 96 f.

——. *Il crittogramma di 'Pater Noster' rinvenuto a Pompei* in *Atti della Pontifica Accademia Romana di Archeologia, Rendiconti*, 12 (1937), 287 ff.

——. *I cristiani a Pompei* in *Rendiconti della R. Accademia di Archeologia Lettere ed' Arti*, Naples, 19 (1936), 14 ff.

——. *Notizie degli scavi di antichità communicate alla R. Accademia Nazionale dei Lincei*, 1939, 266 ff.

Deonna, W. *Talismans magiques trouvés dans l'île de Thasos* in *Revue des Études Grecques*, 20 (1907), 364 ff.

de Decker, J. *Het Cryptogram van Pompeii* in *Hermeneus*, 21 (1949), 67 f.

Di Capua, F. *Osservatore Romano*, 31 March, 1937.

Diehl, L. *Frankfurter Zeitung*, 16 May, 1943.

Dieterich, A. *ABC-Denkmäler* in *Rheinisches Museum für Philologie*, 56 (1901), 77.

Dinkler, E. *Sator arepo* in *Die Religion in Geschichte und Gegenwart. Handwörterbuch für Theologie und Religionswissenschaft*, 3rd rev. ed., 1961, vol. 5, 1373 f.

——. *Älteste christliche Denkmäler* in *Signum Crucis: Aufsätze zur christlichen Archäologie*. Tübingen, 1967.

Dirichs, J. *Das frühchristliche lateinische Kreuzworträtzel Sator Arepo zu Ende erklärt* in *Theologie und Glaube*, 40 (1950), 529 ff,.

——. *Nachtrag zu 'Das frühchristliche lat. Kreuzworträtzel Sator Arepo ...'* in *Theologie und Glaube*, 41 (1951), 339 f.

Dölger, F. J. *Antike und Christentum*, 3, 1932, 278 f.

——. *ΙΧΘΥΣ: Die Fisch-Denkmäler in der frühchristlichen Plastik, Malerei und Kleinkunst*. Munster, 1932.

Dorgon, J. *Le carré magique et sainte Irenée* in *Bulletin de la Faculté des Lettres de Strasbourg*, 34 (1955-1956), 232 f.

——. *Revue des Études Latines*, 33 (1955), 82 f.

Dornseiff, M. *Das Alphabet in Mystik und Magie*. Leipzig, 1928-1931.

——. *Das Rotas-Opera Quadrat* in *Zeitschrift für die Neutestamentliche Wissenschaft*, 36 (1937), 222 ff.

——. *Martialis IX, 95 und das Rotas Opera Quadrat* in *Rheinisches Museum für Philologie*, 96 (1953), 373 ff.

Eitrem, S. *The SATOR AREPO-Formula Once More* in *Eranos*, 48 (1950), 73 f.

Emminghaus, J. H. *Satorformel* in *Lexikon für Theologie und Kirche*, 9, 1964, 343 f.

Erman, A. and Krebs, F. *Aus den Papyrus der Königlichen Museen* in *Handbücher der Königlichen Museen zur Berlin*, 8 (1899), 62 ff.

Erman, A. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 13 (1831), 34 ff.

Euringer, S. *Das SATOR-AREPO-Quadrat: Aberglaube oder Arkandiziplin?* in *Historisches Jahrbuch*, 71 (1957), 334 ff.

Ferrua, A. *Sull'essistenza di cristiani a Pompei* in *Civiltà Cattolica* 88th year, vol. 3, book 2090 (17 July, 1937), 771 ff.

Filson, F. V. *Were there Christians in Pompeii?* in *Biblical Archaeologist*, 2 (1939), 14 ff.

Fishwick, D. *On the Origins of the Rotas-Sator Square* in *Harvard Theological Review*, 57 (1964), 39 ff.

Focke, F. *Sator Arepo: Abenteuer eines magischen Quadrats* in *Würzburger Jahrbücher für Allertumswissenschaft*, 3 (1948), 366 ff.

Forbes, T. R. *The Midwife and the Witch*. New Haven, 1966.

Franco, P. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 13 (1881), 333.

(Frank, C.) *Deutsche Gaue*, 25 (1924), 76.

Franz, A. *Die kirchliche Benediktionen im Mittelalter*. Freiburg im Breisgau, 1909.

Freudenthal, H. *Das Feuer im deutschen Glauben und Brauch*. Berlin, 1931.

Friedenthal, H. *Kieler Neuste Nachrichten*, 2 March, 1930.

Fritsch, G. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 15 (1883), 535.

——. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 49 (1917), 144 ff.

Frugoni, A. *Sator arepo tenet opera rotas* in *Rivista di Storia e Letteratura Religiosa*, 1 (1965), 433 ff.

Fuchs, H. *Arepo* in *Theologische Zeitschrift*, 5 (1949), 468 f.

——. *Die Herkunft der Satorformel* in *Schweizerisches Archiv für Volkskunde*, 47 (1951), 28 ff.

Gagov, G. *La soluzione di un antico crittogramma* (*Sator arepo . . . = 'Sator opera tenet'*) in *Miscellanea Franciscana*, 61 (1961), 276 ff.

Gardiner, G. *Travels in the Interior of Brazil . . . during the Years 1836-1841*. London, 1846.

Germain, G. *Contemplation et interprétation du carré magique* in *Bulletin de l'Association Guillaume Budé*, 4th ser., 1966, 124 ff.

Gleye, C. E. *Deutsche Warschauer Zeitung*, 15 June, 1917.

Griffiths, J. Gwynn. *'Arepo' in the Magic 'Sator' Square* in *Classical Review*, 80 (1971), 6 ff.

Grosjean, P. *Sat Orare Poten?* in *Journal of Theological Studies*, n.s., 3 (1952), 97 f.

Grosser, F. *Ein neuer Vorschlag zur Deutung der Sator Formel* in *Archiv für Religionswissenschaft*, 24 (1926), 165 ff.

——. *Skizze zur Lesung eines berliner Satoramulettes* in *Trierisches Heimatbuch*, 1941, 145 ff.

Guarducci, M. *Il misterioso 'Quadrato Magico': L'interpretazione di Jérôme Carcopino e documenti nuovi* in *Archeologica Classica*, 17 (1965), 219 ff.

——. *Ancora sul quadrato magico* in *Archeologica Classica*, 19 (1967), 144 ff.

Gunn, C. D. *The Sator-arepo Palindrome. A New Inquiry into the Composition of an Ancient Word Square*. Unpublished dissertation, Yale University, 1969.

Hansmann, L. and Kriss-Rettenbeck, L. *Amulett und Talisman: Erscheinungsform und Geschichte*. Munich, 1966.

von Hardenberg, K. *Darmstädter Tageblatt*, no. 69, 1925.

von Hardenberg, K. *Rosenkranz und Bafomet: Versuch der Lösung zweier alter magischer Quadrate* in *Jahresgabe der Gesellschaft Hessischer Bücherfreunde*, 14 (1932), 27 ff.

Haverfield, F. *Ephemeris Epigraphica. Corporis Inscriptionum Latinarum Supplementum. Vol. IX, fasciculus quartus. Addimenta quinta ad Corporis volumen VII*, p. 519, no. 1.001. Berlin, 1913.

——. *A Roman Charm from Cirencester* in *Archaeological Journal*, 56 (1899), 319 ff.

——. *Notes on the Roman Origin of a Medieval Charm* in *Journal of the Anthropological Institute of Great Britain and Ireland*. 22 (1899). 306 f.

Heim, C. *Incantamenta magica graeca latina* in *Jahrbücher für classische Philologie. Supplement* 19. 1893.

Henke, F. *Auflösung der arepo-Zeile in der sator-Formel* in *Theologische Zeitschrift*, 5 (1949), 31 f.

——. *Kurier*, 20 October 1951.

Hepding, H. *Die Sator-Formel* in *Hessische Blätter für Volkskunde*, 34 (1935), 111 ff.; 36 (1937), 176 f.

Hoffmann K. *Satorformel* in *Lexikon für Theologie und Kirche*, 9 (1937), 192 f.

Hommel, H. *Die Satorformel und ihr Ursprung* in *Theologische Viatorum*, 1952, 107 ff.

——. *Schöpfer und Erhalter. Studien zum Problem Christentum und Antike*. Berlin, 1956.

——. *Satorformel* in *Lexikon der Alten Welt*, 1969, 2706.

Hopfner, I. *Osservatore Romano*, 6 March, 1937.

Ihlenfeldt, M. *Bread-wrapper Palindrome* in *Classical Journal*, 49 (1953), 100.

Jacob, A. *Intermédiaire des Chercheurs et Curieux* 3 (1866), 503.

de Jerphanion, G. A. *Une nouvelle province de l'art byzantin: Les églises rupestres de Cappadoce*. Paris, 1925.

——. *La formule magique SATOR AREPO ou ROTAS SATOR. Vieilles théories et faits nouveaux* in *Recherches de Science Religieuse*, 25 (1935), 188 ff.

——. *Encore la formule SATOR AREPO* in *Études Classiques*, 4 (1935), 438 ff.

——. *Osservazioni sull'origine del quadrato magico* in *Atti della Pontifica Accademia Romana di Archeologia*, 12 (1936). 401 ff.

——. *Du nouveau sur la Formule magique ROTAS OPERA (et non SATOR AREPO)* in *Recherches de Science Religieuse*, 27 (1937), 326 ff.

——. *À propos des nouveaux exemplaires, trouvés à Pompéi, du carré magique 'Sator'* in *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres*, 1937, 84 ff.

——. *La voix des monuments. Études d'archéologie*, n. s., Paris, 1938.

von Kaltenborn-Stachau, H. *Die älteste bekannte christliche Originalkunde* in *Pastoralblätter für Predigt, Seelsorge und kirchliche Unterweisung*, 79 (1936-1937), 561 ff.

Karner, K. *Die Sator-Inschrift von Aquincum* in *Theologische Literaturzeitung*, 82 (1958), 391 ff.

Kilian, W. *Gedanken zum Grossen Palindrom* in *Forschungen und Fortschritte*, 32 (1958), 272 ff.

King, C. W. *Early Christian Numismatics and other Antiquarian Tracts*. London, 1873.

Köhler, R. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 13 (1881), 301.

Kraeling, C. H. *The Sator Acrostic* in *Crozer Quarterly*, 22 (1945), 28 ff.

——. *The Excavations at Dura-Europos. The Christian Building. Final Report VII, Part II*. New Haven, 1967.

Krall, J. *Koptische Amulette* in *Mitteilungen aus der Sammlung der Papyrus Erzherzog Rainer*, 5 (1892), 115 ff.

——. *Sator Areto Tenet Otera Rotas* in *Mitteilungen aus der Sammlung der Papyrus Erzherzog Rainer*, 5 (1889), 119 ff.

Last, H. *Journal of Roman Studies*, 44 (1954), 112 ff. Review of J. Carcopino, *Études d'histoire chrétienne. Le christianisme secret du carré magique: les fouilles de Saint Pierre et la tradition.*

——. *The Rotas Sator Square: Present Position and Future Prospects* in *Journal of Theological Studies*, n. s., 3 (1952), 92 ff.

Leclerq, H. *Amulettes* in *Dictionnaire d'Archéologie Chrétienne et de Liturgie*, 1 (1907), 1809 ff.

——. *Sator Arepo* in *Dictionnaire d'Archéologie Chrétienne et de Liturgie*, 15 (1949), 913 f.

Leipoldt, J. *Von Epidaurus bis Lourdes. Bilder aus der Geschichte volkstümlicher Frommigkeit*. Leipzig, 1957.

Letonnelier, G. *Une interprétation du carré magique SATOR AREPO* in *Bulletin Archéologique du Comité des Travaux Historiques*, 1951-1952, 168 f.

Lietzmann, H. *Zeitschrift für die Neutestamentliche Wissenschaft*, 35 (1963), 309 ff.

——. *Archäologische Anzeiger*, 3/4 (1937), 478 ff.

——, *Gnomon*, 13 (1937), 225 ff. Review of the *Excavations of Dura-Europos conducted by Yale University. Preliminary Report V; Preliminary Report VI.*

——. *Deutsche Allgemeine Zeitung*, 25 February, 1940.

Lohmeyer, E. *'Our Father': An Introduction to the Lord's Prayer*. New York, 1966.

Lowe, J. *The Lord's Prayer*. Oxford, 1962.

McBryde, Jr., J. M. *The Sator-Acrostic* in *Modern Language Notes*, 22 (1907), 245 ff.

Mahresch, G. *Zur Sator-Formel* in *Commentationes Vindobonnenses*, 1 (1935), 94.

Maiuri, A. *I cristiani a Pompei* in *Rendiconti della R. Accademia di Archeologia, Lettere ed Arti*, Naples, 19 (1939), 14 ff.

——. *Notizie degli scavi di antichità communicate alla R. Accademia Nazionale dei Lincei*, 1939, 165 ff.

——. *Sulla datazione de 'Quadrato magico' o criptogramma cristiano a Pompei* in *Rendiconti della Accademia di Archeologia, Lettere ed Arti*, Naples, 28 (1953), 101 ff.

Mansikka, V. J. *Litauische Zaubersprüche*. Helsinki, 1924.

Mariotti, S. *Arepo* in *Atti e Memorie dell'Arcadia*, ser. 3, 4 (1967), 243 ff.

Marquès-Rivière. J. *Amulettes, talismans et pentacles dans les traditions orientales et occidentales*. Paris, 1950.

Mestorf. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 14 (1882), 556 f.

Metzger, B. W. *Rotas-Sator Square (supplement)* in *Twentieth Century Encyclopedia of Religious Knowledge.* Grand Rapids, 1955, vol. 2, 982 ff.

Meysing, J. *Le carré magique de Doura Europos* in *Bible et Terre Sainte*, 83 (1966), 5.

——. *Introduction à la numérologie biblique. Le diagramme Sator Arepo* in *Revue des Sciences Religieuses*, 40 (1966), 321 ff.

Moszkowski, A. *Vossische Zeitung*, 5 May and 22 May, 1917.

Mowat, R. *Le plus ancien carré de mots Sator Arepo* in *Mémoires de la Société des Antiquaires de France*, 64 (1905), 41 ff.

Omedeo, A. *La croce d'Ercolano e il culto precostantiniano della croce* in *La Critica* 46 (1940), 45 ff.

van Ootegehem, J. *Le rébus Sator* in *Études Classiques*, 3 (1934), 557 ff.

Orcibal, J. '*Dei agricultura*': *Le carré magique Sator Arepo, sa valeur et son origine* in *Revue d'Histoire des Religions*, 146 (1954), 51 ff.

Palma, J. *L'Intermédiaire des Chercheurs et Curieux*, 3 (1866), 476 f.

Peixoto, R. *A tatuagem em Portugal.* Porto, 1893.

Petrides, S. *Les 'Karkinoi' dans la littérature grecque* in *Echos d'Orient*, 22 (1909), 86 ff.

Picard, Ch. *Sur le carré magique à l'Eglise odorante (Kohar Kilise, Cappadocia)* in *Revue Archéologique*, 1 (1965), 101 f.

Pichon, J.-C. *Les cycles du retour éternel. 1. Le royaume et les prophètes.* Paris, 1963.

Plassmann, J. O. *Eine alte Formel und ihre neue Deutung* in *Germanien*, 1937, 284.

Polge, H. *La fausse énigme du carré magique* in *Revue d'Histoire des Religions*, 175 (1969), 155 f.

——. *Un anthroponyme fictif* in *Revue Internationale d'Onomastique*, 21 (1969), 301 ff.

Porter, J. H. *Folklore of the Mountain Whites of the Alleghenies* in *Journal of American Folklore*, 7 (1894), 105 ff.

(Quicherat, J.) *Magazin Pittoresque*, 22 (1854), 348.

Ripley, R. L. *Believe it or Not!* New York, 1929.

Rostovtzeff, M. I. et al. *The Excavations at Dura-Europos conducted by Yale University. Preliminary Report* V and *Preliminary Report VI.* New Haven, 1934 and 1936.

Rostovtzeff, M. I. *Il rebus sator* in *Annali della Reale Scuola Normale Superiore di Pisa*, ser. 2, 3 (1934), 105.

Sauerhering, F. *Tägliche Rundschau*, 15 October, 1925.

Seligmann, S. *Die Satorformel* in *Hessische Blätter für Volkskunde*, 13 (1914), 154 ff.

—— *Ananisapta und Sator* in *Hessische Blätter für Volkskunde*, 20 (1920), 1 ff.

Schneider, C. *Geistesgeschichte des antiken Christentums.* vol. 1, Munich, 1954.

Schlögl, H. J. *Wiener Reichspost*, 16 May, 1917.

Schooneman, W. *Het Kruswoordraadsel van Pompeii* in *Hermeneus*, 21 (1949), 27 ff.

Schwartz, J. *À propos du carré SATOR chez les Éthiopiens* in *Annales d'Éthiopie* 2 (1957), 219 ff.

Simon, J. *Bulletin des publications hagiographiques* in *Annalecta Bollandiana*, 49 (1931), 117 ff.

Simon, M. *Verus Israel.* Paris, 1948.

Sökeland, H. *Zwei Himmelsbriefe von 1815 und 1915* in *Zeitschrift des Vereins für Volkskunde*, 25 (1915), 241 ff.

Stegemann, V. *Die koptischen Zaubertexte der Sammlung Papyrus Erzherzog Rainer in Wien* in *Sitzungsberichte der Heidelberger Akademie der Wissenschaft. Philosophische-historische Klasse*, 24 (1933-1934), 38 ff.

Storms, G. *Anglo-Saxon Magic.* The Hague, 1948.

Strathmann, H. *Christen in Pompeji und Herculaneum* in *Pfälzerische Pfarrerblätter*, 38 (1938), 113 ff.: 39 (1939), 14 f,

——. *Die Sinnzeichen der altchristlichen Kunst* in *Theologische Blätter*, 18 (1939), 209 ff.

Sundwall, J. *L'enigmatica iscrizione ROTAS in Pompei* in *Acta Academiae Aboensis. Humaniora*, 15 (1945), 16 f.

Suys, E. *Une incantation célèbre* in *Humanitas*, 2 (1927), 122 ff.

——. *La formule SATOR est-elle chrétienne?* in *Études Classiques*, 4 (1935), 291 ff.

Szilágyi, J. *Ein Ziegelstein mit Zauberformel aus dem Palast des Statthalters in Aquincum* in *Acta Antiqua Academiae Scientiarum Hungaricae*, 2 (1954), 305 ff.

Treichel, A. *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (=*Zeitschrift für Ethnologie*), 12 (1880), 42 ff., 276 ff.; 13 (1881), 306f.; 15 (1883). 354 f.; 18 (1886), 249 f.; 19 (1887), 69 ff.

Tria, L. *Osservatore Romano*, 11 March, 1973.

——. *'Sator Arepo' formula magica o professione di fede?* in *Scuola Cattolica*, 63, fasc. 6 (1935), 698 ff.

Ussani, V. *Per un esemplare cassinese di 'Rotas Opera'* in *Studi Medievali*, n. s., 16 (1943), 237 ff.

Valentiner, T. *Apepo* in *Mitteilungen des Deutschen Archäologischen Instituts*, Rome, 57 (1942), 250.

——. *Ist Seneca der Verfasser des Rotas-Quadrats?* in *Geistige Welt*, 4 (1951), 135 ff.

Vendryès, J. *Une hypothèse sur le carré magique* in *Comptes Rendus de l'Académie des Inscriptions et des Belles-Lettres*, 1953, 198 ff.

Veyne, P. *Le carré Sator ou beaucoup de bruit pour rien* in *Bulletin de l'Association Guillaume Budé*, 4th ser., 1968, 427 ff.

Watzinger, C. *Die Christen in Dura* in *Theologische Blätter*, 17 (1938), 113 ff.

Wagner, L. *Frankfurter Zeitung*, 19 August, 1943.

Wehling-Schücking, H. *Zum Deutproblem der Sator-Inschrift* in *Album philologicum voor Th. Baader*, Tilburg, 1939, 197 ff.

Weinreich, O. *Gnomon*, 6 (1930), 361 ff. Review of M. Dornseiff, *Das Alphabet in Mystik und Magie.*

Weis, H. *Jocosa: lateinische Sprachspielereien gesammelt und erläutert.* Munich, 1942.

von Welz, E. *Sator Arepo* in *Societas Latina*, 5 (1937), 55 ff.

Wendel, C. *Das Rotas-Quadrat in Pompeji* in *Zeitschrift für die Neutestamentliche Wissenschaft*, 40 (1941), 138 ff.

Wescher, C. *Bulletin de la Société Nationale des Antiquaires de France*, 1874, 151 ff.
William, H. *Vossische Zeitung*, 19 June, 1917.
Wuttke, A. *Der deutsche Volksaberglaube*. Hamburg, 1860.

Zatzmann, V. *Die Satorformel und ihre Lösung* in *Hessische Blätter für Volkskunde*, 24 (1925), 98 ff.

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Photograph after H. Sökeland in *Zeitschrift des Vereins für Volkskunde* 20, 1915.

Pl. Ia and Ib. Photograph and tracing of the square found in the Palestra at Pompeii.
Courtesy: Soprintendenza alle Antichità, Napoli.

Pl. II. The square from Cirencester.
Copyright Corinum Museum.

Pl. III. The square painted on the wall of the Temple of Azzanathkona at Dura-Europos.
Courtesy: Dura-Europos Collection, Yale University.

Pl. IV. The square on a roof tile from the Palace of the Governor at Aquincum.
Courtesy: Budapesti Történeti Muzeum.

Pl. V. Drawing of the square in a mosaic floor of the parish church of Pieve Terzagni near Cremona (about the eleventh century). Photograph after H. Sökeland in *Zeitschrift des Vereins für Volkskunde* 20, 1915.

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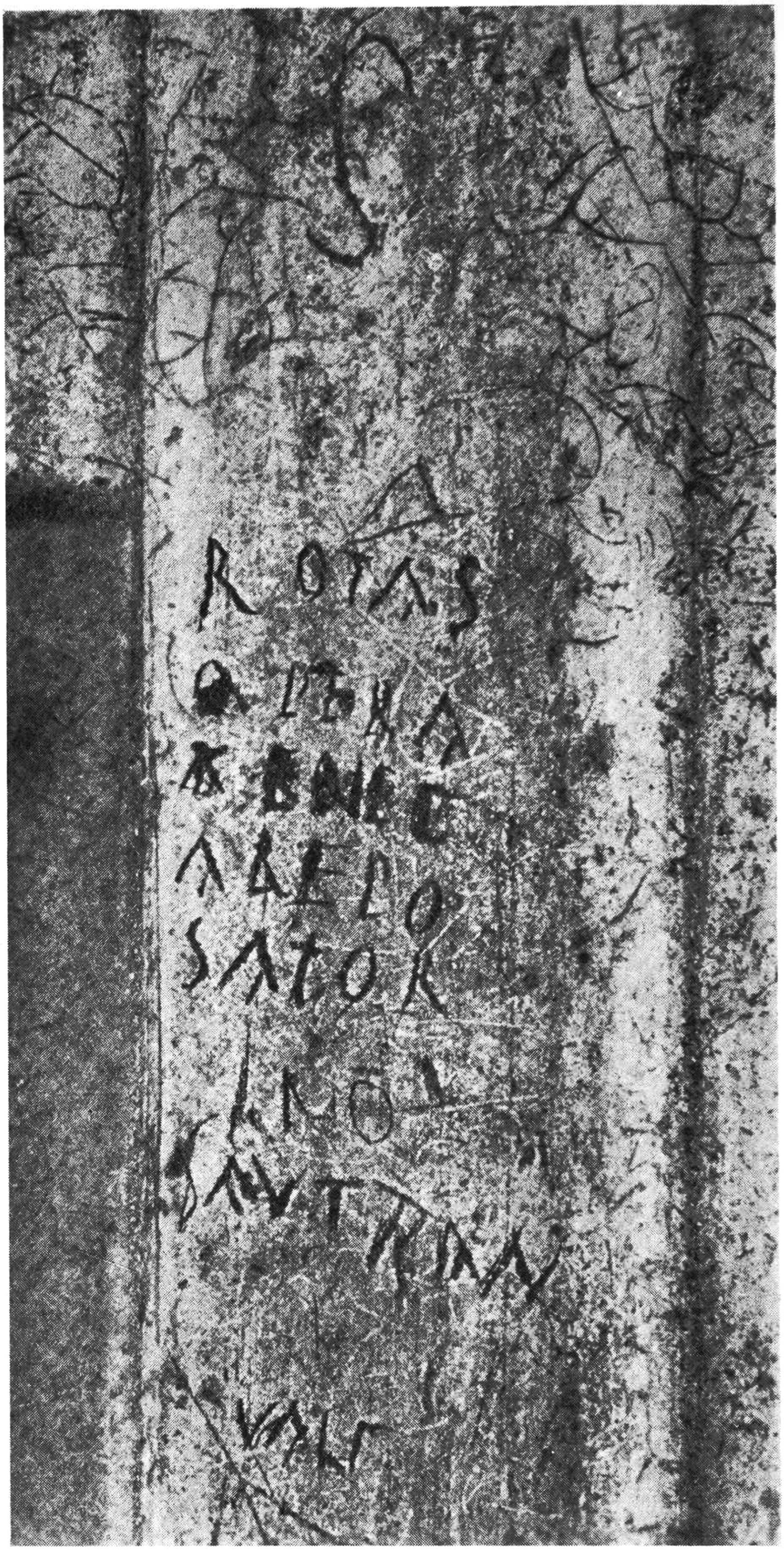


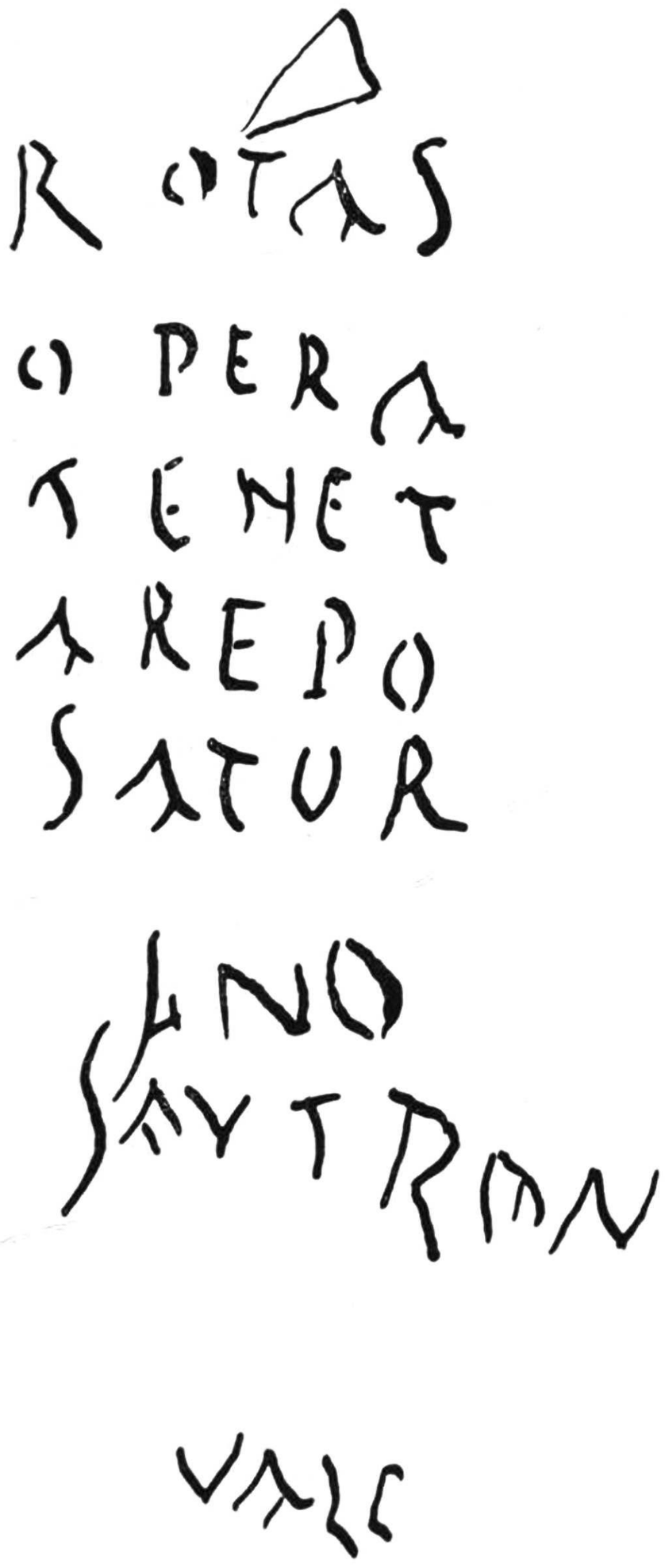


Plate II

Plate III

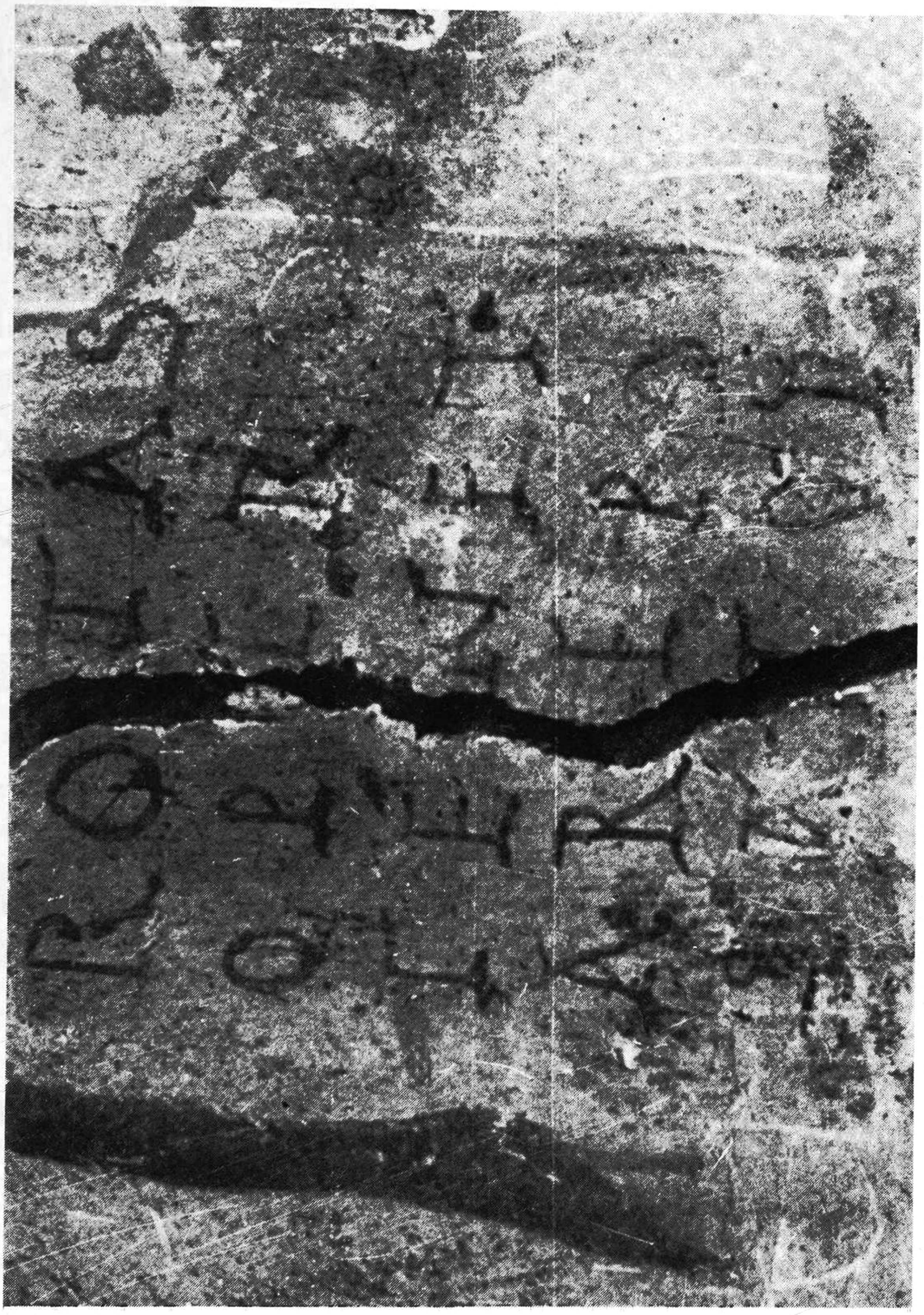
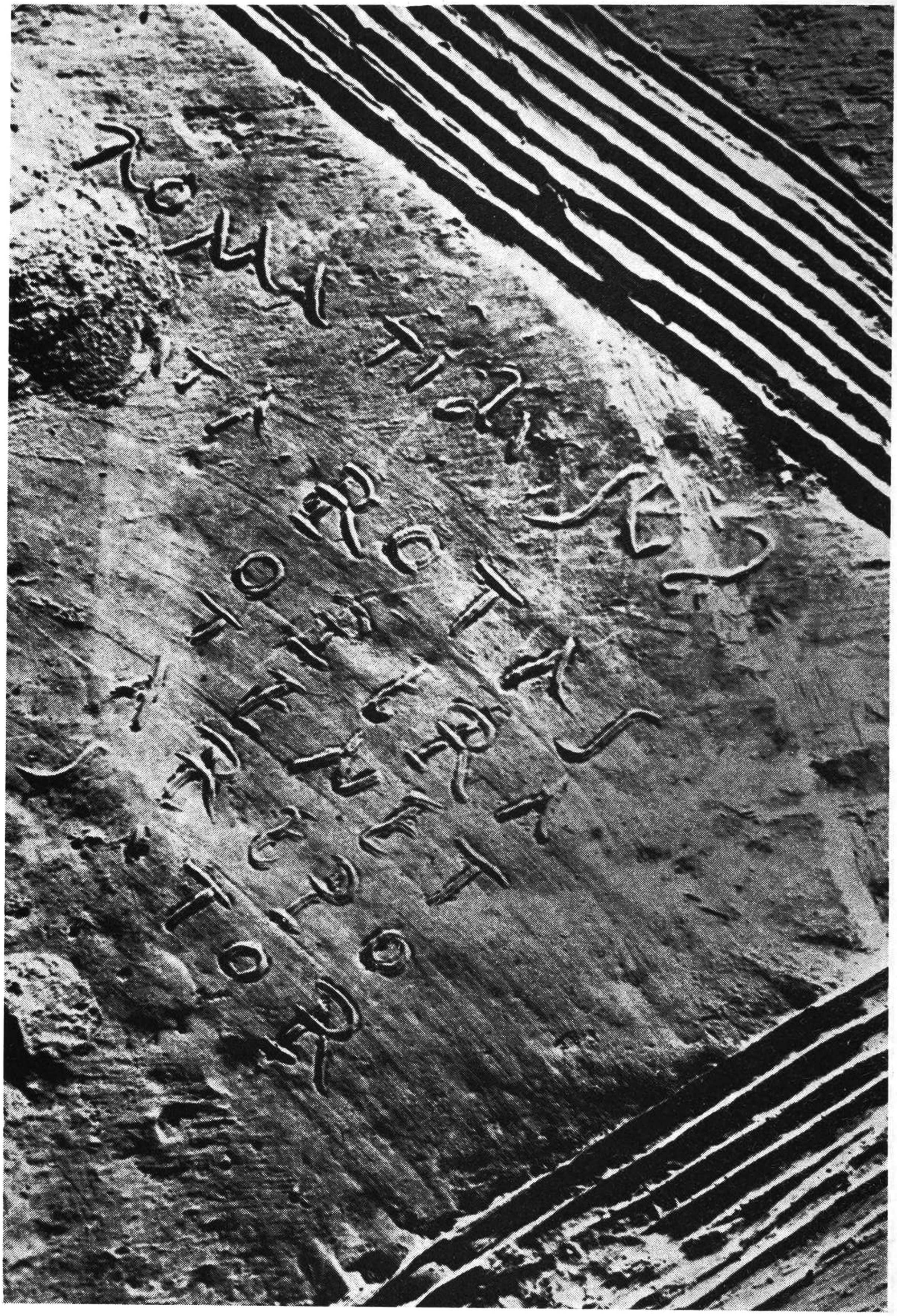
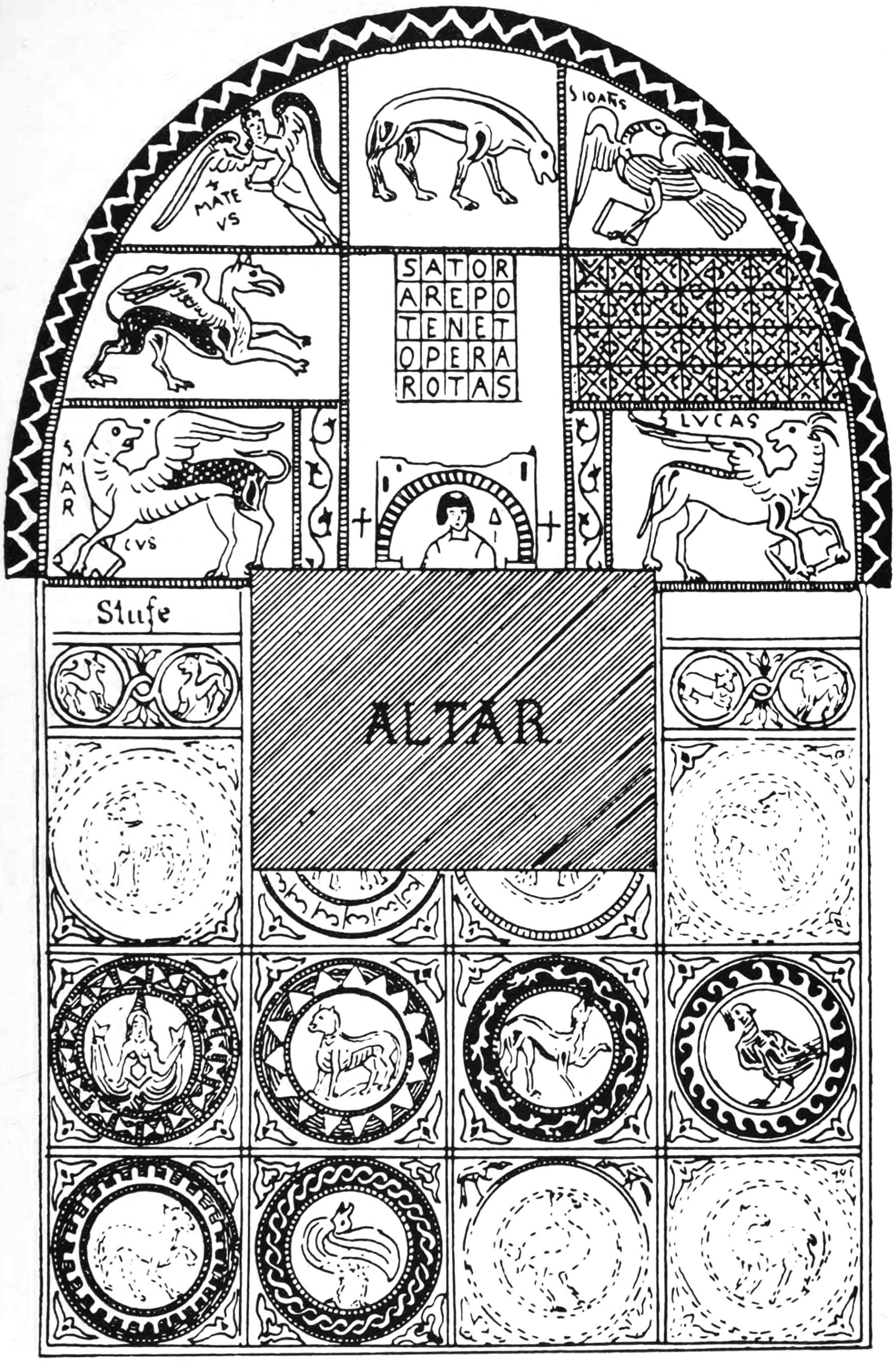


Plate IV

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The Mithraic origin and meanings of the rotas-sator square. [By] Walter O. Moeller.

Leiden, Brill, 1973.

52p. illus. 25cm. (Études préliminaires aux religions orientales dans l'Empire romain, t.38)

Bibliography: p.[44]-52.

1. Rotas-Sator square. 2. Mithraism. I. Title. II. Ser ies.

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